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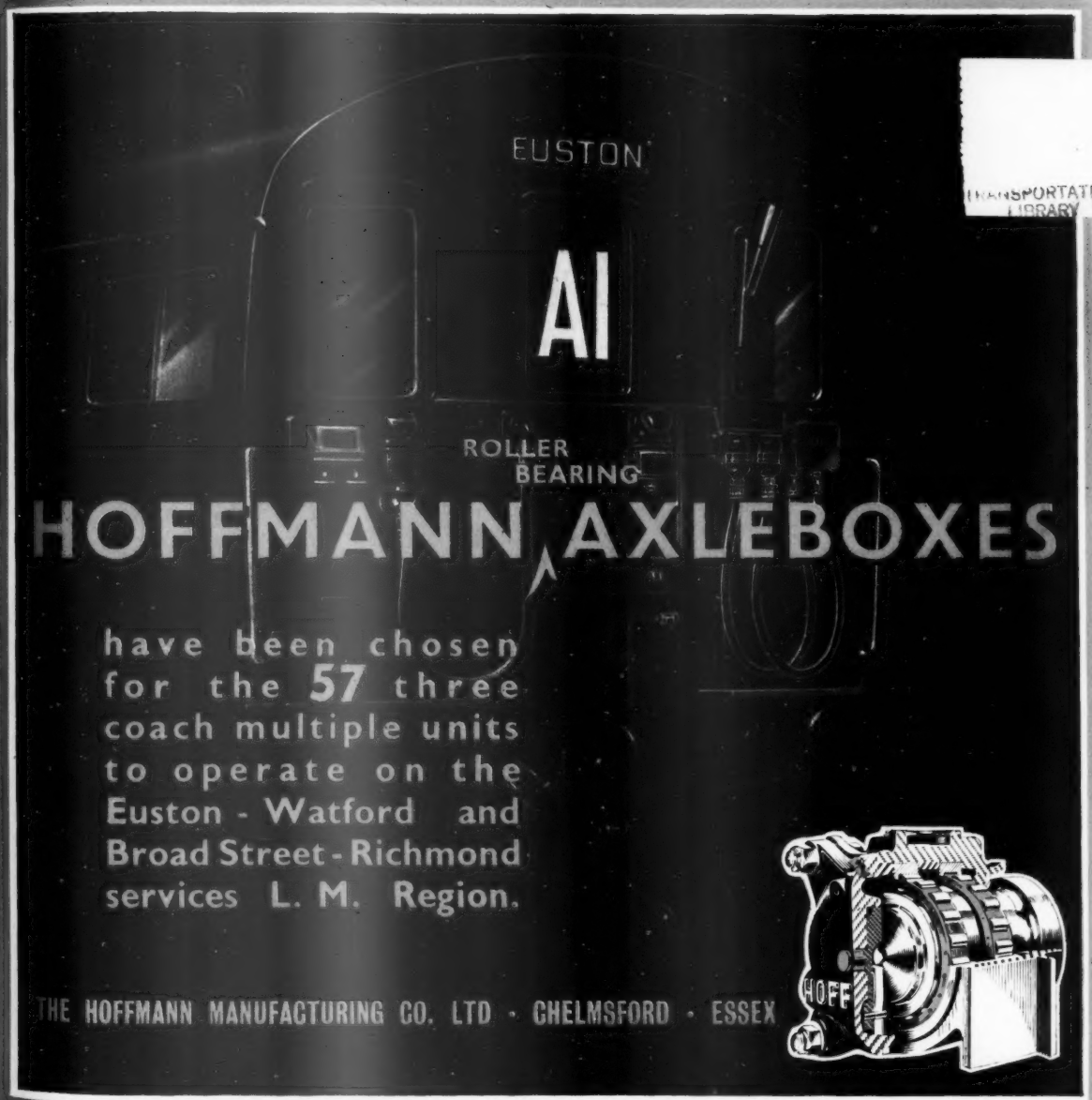
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Replacement of L.T.E. Underground Stock

THE contract placed by the London Transport Executive with the Metropolitan-Cammell Carriage & Wagon Co. Ltd. for 76 seven-car trains for the Piccadilly Line, reported in the Contracts and Tenders section this week, involves complete replacement of rolling stock on the Piccadilly Line except for 15 trains of recent design and the three prototype unpainted-alloy trains placed in service a few months ago. As with the Metropolitan-Cammell prototype stock described in our issue of October 25, 1957, the new stock will incorporate G.E.C. traction motors, B.T.H. controls, and Metalastik rubber suspension. For the Central Line it is intended to order 12 prototype motor coaches with two motored axles on each bogie. This is necessary because the intermediate cars will be trailers and not non-driving motor cars. Whilst the new vehicles will add to the comfort of travel by Underground, largely by affording more seating space, they are no more than is necessary to attract traffic to the tube lines and to serve as essential replacements. In view of the desirability, because of the falling bus receipts, of attracting traffic to the Underground, apart from keeping the streets clear of traffic, it is essential that travel on L.T.E. railways be made as pleasant and comfortable as possible. The advantage of underfloor equipment in the new tube stock is the increase of 15 per cent in passenger capacity compared with vehicles now being replaced, without additional operating costs. The use of unpainted light alloy panelling in lieu of the former standard of painted steel sheet moreover gives a saving in overhaul and cleaning costs. The new orders represent the first really large investment by London Transport in Underground stock since 1939. Having replaced its bus fleet since the war, L.T.E. is now bringing up to date its railway vehicles, many of which are 20 years old or more.

Decline in Steel Output

THE improved supply position of most steel products, other than sheet, has had considerable effect on production which in July was nearly 13 per cent lower than in July, 1957. Besides a decline in home consumption from the level reached in the autumn of last year, the position has been aggravated by consumers drawing on stocks now that there is no longer any general incentive to stockpile. Actual output in July averaged 315,900 tons a week compared with 362,500 tons in July last year. Despite continued activity in manufacture and repair of locomotives and rolling stock by British Railways and by private builders, and in progress in railway electrification, delivery of steel for railway purposes during the first quarter of 1958 declined by 6·9 per cent compared with 1957. Deliveries during the second quarter of 1958 are provisionally put at 254,100 tons, a decline of 19 per cent on the second quarter of 1957. This decline, although the largest recorded recently in any industry in this country, seems unlikely to continue, for it may be that easier credit conditions will stimulate demand. Meanwhile British Railways mineral traffic, which last year contributed some £53·5 million to total freight receipts of £288·5 million, continues to suffer. In general the steel industry has confidence in the future and is continuing with its plans for expansion.

Reorganisation in Western Australia

RESPONSIBILITY for the management of the Western Australian Government Railways was wisely vested in one man towards the end of last year; then, under an amendment to the Government Railways Act of 1904-48, control reverted from a Commission of three to a single Commissioner—in effect a General Manager. The change has been recognised as being for the better, but the amount of work which has devolved on the sole Commissioner has been felt to justify further assistance for him in the creation of the position of Chief Finance & Executive Officer. Shortly after the recent appointment as Commissioner of Mr. T. Marsland as successor to Mr. T. W. Brodie, Acting Commissioner, the opportunity has been taken to appoint to the new post, as recorded in our personal columns, Mr. Clem Robinson, formerly Officer in Charge of the Works Section of the Secretary's [of Railways] Branch. His duties, Mr. Marsland has explained, will be "to help the Commissioner and to watch the financial side of the Railway Department," and also to ensure liaison between the Commissioner and heads of branches and the Treasury, especially in matters of finance. Creation of the new post is understood to be a further step in the internal reorganisation of the Railway Department.

Chinese Railway Expansion

ACTIVITY on the Chinese Republic Railways, which serve the largest population in the world, and a community in progress of large-scale industrialisation, proceeds apace. Apart from the developments in steam motive power and in electrification which we have recorded from time to time, the amount of construction now in progress, of new standard-gauge lines, is great. The building has started of a line linking Chungking, in Szechen, with Kweiyang. This line will be 240 miles long and will

traverse difficult country throughout, including the Liangfengya and Loushan mountain ranges; it is the final section of a new trunk line from the extreme North to the extreme South. Included in it will be a bridge over the Yangtse near Chungking. Kweiyang will be linked with Changsha, on the Peking-Canton Railway, by a new line about 400 miles long, which will run from east to west; it is due for completion in 1961, and tracklaying will be complete from the Eastern terminus to Louki this year. Construction should soon be finished of a branch from the Kweiki-Amoy Railway to Changping, about 50 miles. This expansion creates an immense demand for railway material of all kinds, much of which cannot be produced rapidly in China.

French Footing in China

ONE reason for the placing by the Chinese authorities, last month, of an order for electric locomotives with Schneider-Creusot is stated to be an agreement with the French Government on buying goods from China. The order is for 25 5,750-h.p. Co-Co locomotives weighing 138 tons, for working on the 25-kV. 50-cycles system; the total value is reported to be £3,760,000, and delivery is to be completed by October, 1960. No doubt the Chinese mission which visited Western Europe in April was struck by what the French National Railways and French industry could show of 50-cycle traction in active operation; and the French technical mission, including railway electrical engineers, which visited China last autumn, evidently created a good impression. It is a pity that with equally good or better techniques and workmanship available in this country, application of 50-cycle traction has not progressed far enough for British Railways to provide a shop window for British-built locomotives and equipment for it. It would be interesting to know what France is buying from China, and on what terms, to afford a promising entry into a great market. Negotiations for further electric locomotive orders are understood to be in progress.

Unrealistic Canadian Railway Wage Demand

THE unreality of the recommendations for increases in the pay of the "non-operating" staff of Canadian railways made in the majority report of the Conciliation Board is shown in a recent joint statement by Mr. W. T. Wilson and Mr. D. I. McNeill, Vice-Presidents, Personnel, respectively of the Canadian National and Canadian Pacific Railways. "Non-operating" staff are, roughly, equivalent to staff on railways in this country other than train crews. Increases on the scale recommended, it is pointed out, would add approximately $60,000,000 a year to the costs of the two railways. Without wage increases, 1958 will show a combined railway deficit of over $30,000,000 before any payment to the owners of these two systems. A rise in freight rates of more than 35 per cent would be necessary to offset a $60,000,000 wage increase and enable the railways to earn what the Canadian Board of Transport Commissioners has allowed. A wage increase of $60,000,000 must result in a reduction of employment on the railways. The two managements are now analysing operating and traffic conditions in the light of the present circumstances before informing the Minister of Labour, Mr. Michael Starr, of their position as to the Conciliation Board report.

Financial Difficulties in New Zealand

A SERIOUS situation confronts the New Zealand Railways Department because of the inadequacy of its general reserve. According to the Department report to Parliament for the year ended March 31, 1958, a net operating loss of £1,145,427 resulted, £876,054 more than that for the preceding 12 months, and was met, as was the previous deficit, from the general reserve. Formerly such losses were financed from the Stabilisation Vote or, as in 1952, from the Consolidated Fund. The report points out that a general reserve of £10 million is necessary to provide working capital to finance stores stock, station change, and current payments, but that the general reserve is now only £3 million. For some years any shortage in working capital has been met from specific reserves, mainly the depreciation reserve; the amount of this last which has not been used for capital replacement is £10 million, but only a small part of this balance is now available for capital purposes.

Lack of Cash Resources

FOR a system with a turnover of £35 million, the position of the New Zealand Government Railways is disquieting. The total amount of cash and investments held at March 31 last was just over £5 million, a reduction of £2 million since April 1, 1957. A substantial working deficit is expected for the year ending March 31, 1959, by which date cash resources will be reduced to a low level. Revenue last year was £34,442,769, an increase of £1,677,433 on the previous year, but expenditure at £35,588,196 rose by £2,553,487. The vital necessity of an efficient railway system for the prosperity of New Zealand is recognised by all interests. Road competition, however, is intense. Any increase in charges probably would price the railways out of the market. It is essential that they continue to improve their services, including the highest practicable speeds on the 3-ft. 6-in. gauge, most of it single line. Much has been achieved by diesel and electric traction. The number of diesel locomotives was recently 272, with 33 on order, compared with a little over 500 steam gradually being withdrawn from service.

Road Influence in Railbus Construction

THE two railbuses which have been completed for British Railways by Bristol Commercial Vehicles Limited in conjunction with Eastern Coach Works Limited, incorporate features which, though familiar on road service passenger service vehicles are unusual on railway coaches in this country. This is not surprising as the firms are jointly concerned in the construction of a large number of buses used by several undertakings associated with the British Transport Commission. The body and underframe construction generally follows the manufacturers' normal practice and the power unit, a 112-h.p. Gardner engine, is used in many of their buses. Also uncommon to British Railways are the SAB resilient wheels, disc brakes and fully automatic gear change equipment. The vehicles tare some 13½ tons and have seats for 56 passengers; the resultant tare weight per passenger is thus in the order of 0·24 tons. This compares with about 0·3 tons for the Park Royal; 0·24 for the A.C. cars; and 0·27 tons for the German W.M.D. designs for British Railways. Because of the sparseness of traffic on some branch lines in this country, it may well be that the ability of the builder in keeping these ratios as low as is consistent with good riding qualities will be a major factor in the success of this experiment in rural rail transport.

Mechanical Coach Washing in India

HOW far economy in labour costs besides a desire for greater external cleanliness of stock has been the cause of building the new mechanical coach washing plant at Bombay is not known. The machine is the first of its kind in India. It was designed by the engineering staff of the Western (formerly Bombay, Baroda & Central India) Railway and built by the staff of the Bombay Central car sheds; in conjunction with manual cleaning it is expected to wash the outside of four Western Railway multiple-unit electric suburban sets a day, compared with two sets washed only by hand. Only indigenous materials were used and the cost of installation by railway staff was low. These factors, and the economies realised through operation, are hoped to result in repayment of the cost in less than two years. Evidently the plant is not as elaborate as the machine, the first in South Africa, recently installed near Johannesburg; but saving in cost has been an important consideration.

Automatic Half-Barriers Recommended

THE accident at Little London crossing on the Grimsby-Barnetby line of the Eastern Region on November 6, 1957, arose from the gatekeeper, a man with 20 years' experience of the location, believing that both trains which he knew to be in section had passed; he opened the gates, without taking sufficient care, immediately the first of them went by. The other train, a diesel set, was approaching at speed and ran down a motor cycle, killing its rider. As will be seen from our summary in this issue of Colonel W. P. Reed's report, the crossing is a busy one and the staff have to use considerable discretion so as to work the gates with the minimum of disturbance to road traffic. For some time it has been impossible to comply with statutory requirements regarding their normal position, exemption from which, however, is now being sought. Colonel Reed regards the location as suitable for automatic "half barriers," legalised by the Act obtained by the British Transport Commission in 1957, referred to in our editorial article of July 4 last, and recommends that consideration be given to providing such equipment in place of the existing locally worked gates.

North British Light-Service Diesel

TEN North British/G.E.C. 800-h.p. diesel-electric locomotives are now being delivered to the Eastern Region of British Railways, as reported last week, for inter-yard freight train duties in the London area. In general they follow conventional British construction for locomotives of this type. Most of the power equipment has been tried previously in revenue service. The engine used is the well-known Paxman 16YHXL 16-cylinder vee-form model; this is already been fitted in the 10 B.T.H. locomotives of the same power, described in our November 22, 1957, issue. The general conception of both these locomotives is similar and service weights are identical at 68 tons. The Paxman engine in an earlier but basically similar version was used in the "3P/3F" Bo-Bo, No. 10800, built for British Railways by North British in 1950, with B.T.H. electrical equipment; doubtless many valuable lessons learned from the construction and operation of this diesel have been incorporated in both the recent N.B.L. and B.T.H. designs. The electrical equipment of the N.B.L. Type "1" is of G.E.C. make, the control equipment being designed for the automatic adjustment of field strength on every power notch. The type of automatic oil-operated servo-regulator incorporated in this system was designed originally for the eight 625-h.p. Bo-Bo diesel locomotives supplied by North British in conjunction with G.E.C. to the Ceylon Government Railway in 1951; but this is the first time that this G.E.C. control has been applied to equipment for British Railways. A description of the N.B.L./G.E.C. Type "1" locomotive appears elsewhere in this issue.

Last U.S.A. Steam Stronghold Falls

THE tenacity has been remarkable of the prosperous Norfolk & Western Railroad in adhering to steam operation, while practically all the Class I railways in the U.S.A. were turning over to diesel operation, which many have now done completely. With its "J" class 4-8-4 locomotives the N. & W. brought steam locomotive working and maintenance to probably the highest level ever attained in North America, and much the same could be said of the large articulated locomotives, a number of them compounds, used in working its heavy coal trains through the Allegheny region. But several years ago the first general purpose diesel-electric units made their appearance on Norfolk & Western metals, and the economies that they have effected on the services to which they were drafted have prompted the decision which was probably inevitable: complete conversion to diesel traction. At an estimated cost of $50,000,000 268 diesel-electric units are to be purchased, some fitted for working passenger trains, and by the end of 1960 202 of the existing 262 steam locomotives will have been withdrawn.

The Aftermath

PUBLIC and busmen alike are now beginning to experience the effects of the recent disturbance in the London bus industry and to become aware of the efforts which must be made to meet its cost. It is fairly obvious that this is so great that it will be impossible for London Transport to recoup itself in the current year. It also is clear that a very big deficit must be shown on this year's working as a result of the agreements recently concluded between Executive and men and the heavy traffic losses eventuating from the strike. These are in the region of 10 per cent on the road services. The warning issued by Sir John Elliot, Chairman of the L.T.E., immediately before the strike began is now clearly seen to be justified. In a letter distributed to every garage and addressed to every London busman, Sir John asked each man to consider most carefully the possible results of a refusal to work. He traced the history of the dispute from the union's first unsuccessful application for an increase of 25s. a week to submission of the case to the Industrial Court for arbitration. Sir John Elliot referred to his belief in arbitration as a means of settling industrial disagreement and in the importance of adhering to a decision gained by this method: he asserted cogently that "a strike does not, and cannot, alter facts." The facts which followed were very pertinent indeed. Briefly, they were that increased ownership of private road vehicles, the rapid spread of television, and day-long congestion of London traffic resulting in unreliable and irregular services, all combined to discourage public use of buses: he summed up with the flat statement that, as an effect of these causes, "London Transport road services are today carrying just under 2 million fewer passengers every day than they were in 1950, and the numbers are still falling." He asserted his belief that the disappearance of public transport from the London scene at such a time, discounting public inconvenience, would be disastrous to the busmen themselves. He underlined his conclusion: "the inevitable result of a strike will be that when the buses do come back on the streets there will be less work for fewer busmen, and eventually less money with which to pay wages."

It is well known that essential and very drastic reductions must be made in London Transport road services. They already are in course of implementation. Between this week and the early months of next year—precise dates of the various stages of the economy drive are still being worked out—London Transport will cut mileage and reduce the number of buses on the roads. Gross working expenses during a full year will drop by an amount in the region of £3 million. Obviously, a saving of this magnitude cannot be achieved without a heavy impact on the amenities previously available to the London traveller. The withdrawal of certain central bus routes with consequential variations to other services will effect a saving of 170 buses. The withdrawal of Sunday seasonal extensions and augmentations on certain buses and trolleybuses, with certain changes in other services, will result in a net saving of 10 buses. Mileage reductions on country buses will save 30 buses; reductions of service on central routes, including the closure of three garages, will save 350 buses, and mileage reduction on trolleybuses will result in an economy of 60 trolleybuses. There seems no good reason to suppose that these plans will be endangered by the recent resolution calling for non co-operation. Responsible leadership in the bus industry today is only too well aware of the need for economies if a nucleus of London Transport road services is to be retained.

The price of peace within the industry is now becoming apparent. At this stage it is not without interest to recall briefly the course of the negotiations and the changes which took place in conditions over the period from the date of the union's first claim. On October 17, 1957, the Transport & General Workers' Union applied for an increase of 25s. a week for all employees covered by agreements. This claim had been twice rejected by the Excutive by January this year, and both sides agreed to approach Sir Wilfred Neden, Chief Industrial Commissioner of the Ministry of Labour. Agreement could not be reached at

the subsequent meeting, and the union's delegate conference consented to ask the Minister of Labour to set up a Committee of Investigation to make enquiries and recommendations. This the Minister refused to do. He reminded the parties concerned that the normal process of arbitration was available. In February, both delegate conference and Executive agreed to submit the matter to arbitration by the Industrial Court, which subsequently awarded an increase of 8s. 6d. weekly to central road services drivers and conductors only. This award, accepted by the Executive, was rejected by the delegate conference, which resolved to ask the union executive for plenary powers to achieve an increase of 10s. 6d. weekly for all staff concerned. Early in April, the union gave notice of intention to strike on May 5: the following day, the award was again rejected. On the other hand, the Executive renewed its offer. This was met by another rejection from the union; instead, a counter-proposal specified an immediate increase of 6s. 6d. a week to all grades and a general review of pay later in the year. On the same day—April 28—and provided that the 8s. 6d. increase was accepted and the strike notice cancelled, the Executive offered to examine in the autumn with the union, and in the light of existing circumstances, the wages of staff not awarded an increase; accelerated review for Green Line single-deck drivers, and an examination of economies. Despite this offer, labour was withdrawn from London road services on May 5.

Sir Wilfred Neden saw both parties on May 21, without result. On May 23, the Executive offered to advance the review for "excluded grades" from autumn to summer. At the end of May, the Prime Minister saw a deputation from the T.U.C. and, within the next 24 hours, the following proposals were made on the basis of the Prime Minister's suggestions: an increase of 8s. 6d. for central road services men; an unspecified increase for Green Line single-deck drivers, and a general review of "excluded staff" to be made on resumption of work and to be completed within one month without commitment as to amount or date of any increase. These proposals were rejected by the union: instead, a demand was made for an immediate token payment of 4s. a week to "excluded staff." The following day, the delegate conference also rejected the offer. On June 4, the Prime Minister again saw a deputation from the T.U.C. and set out his formula for a basis of settlement. This closely followed the latest proposals made by the Executive—8s. 6d. for the Central London busmen, the inclusion of the Green Line men in this settlement, and agreement between Executive and union on a definite date for the review of the remaining men not included in the award. The Executive promptly issued its own proposals: 8s. 6d. for Central Road Services men; the single-deck Green Line drivers to receive an "agreed increase," and review of "excluded staff" on the merits of the case to be completed by July 1, 1958; any increase arising to be payable from the following day. The union wanted the increase for central road services men to be payable from March 12, 1958; any increase resulting from the review of "excluded staff" was to be payable from the date of commencement of the review. On June 11, both Sir John Elliot and Mr. Frank Cousins, the General Secretary of the T. & G.W.U., had interviews with the Minister of Labour: no further progress was made. On June 13, the delegate conference recommended discontinuance of the strike and discussions on a resumption of work, but this recommendation was rejected by the garages four days later. On June 18, the Executive clarified its proposals of June 5 as follows: 8s. 6d. was offered to central road services men; an agreed increase was to be made for Green Line single-deck drivers, and the review for "excluded staff" was to be carried out on the merits of the case by July 1, 1958. Any increase was to be payable from July 2, 1958. The Executive stated that the intention of the review was to provide an upward trend; any increase for maintenance staffs would not be less than that awarded to London Transport and railway workshops staffs. The increase for country bus services staff would not compare unfavourably with that given to other London Transport road services staff or to comparable grades elsewhere. These proposals were accepted by the delegate conference of the T. & G.W.U. on June 19 and, the following day, the garages accepted and an agreement calling off the strike was signed. The review of "excluded staff" began the same day. Road services were resumed on June 21.

It is clear, therefore, that the Executive adhered to its principle that the busmen should return to work on the basis of the Industrial Court's award. On this condition, the review for "excluded staffs" was antedated to the summer in line with the date of the railway settlement and the Prime Minister's formula to the T.U.C. that it should be "on the merits of the case." An "upward trend" was agreed by the Executive in view of other wage settlements made since the date of the Industrial Court award. For its part, the union dropped its claim for an immediate increase of 10s. 6d. for all grades and agreed to call off the strike on June 20 on the basis of 8s. 6d. for the central road services staff on resumption, and a review of wages for "excluded staff" to be completed by July 1. It is also clear that the agreements concluded with the railway unions which had repercussions either direct or indirect on London Transport employees also had the effect of altering the background against which negotiations with the London busmen were being conducted.

Western Region Winter Passenger Services

A FEATURE of the winter timetable of the Western Region is the almost complete elimination of slip coaches. Three only will remain in operation: the slip at Westbury of the Weymouth portion off the 3.30 p.m. from Paddington to Plymouth; that at Didcot off the 7 a.m. from Weston-super-Mare to Paddington; and that at Bicester off the 5.10 p.m. from Paddington to Wolverhampton. There will be various modifications of service as a result. The 10.30 a.m. down "Cornish Riviera Express" will cease its time-honoured practice of slipping a Weymouth portion at Westbury. Instead the 9.15 a.m. from Paddington to Weston-super-Mare will start at 10.5 a.m., and omit its present calls at Ealing and Didcot; the 11.45 a.m. from Chippenham to Westbury will be held till 12.9 p.m. to connect with it, and will form the existing 12.42 p.m. Westbury to Yeovil and Weymouth, the journey to which from London will thus take 25 min. longer than now. The 10.5 a.m. from Paddington will provide a new and useful mid-morning service from Paddington to Swindon, Chippenham and Bath, and will reach Bristol at 12.41 p.m. The 9.5 a.m. from Paddington to Bristol will call additionally at Didcot, in place of the altered 9.15 a.m.

In the up direction the 1.50 p.m. from Bristol to Paddington will stop at Reading instead of slipping coaches, and at Swindon also. From Swindon to Reading, 41·3 miles, this train is to be booked in 36 min., at 68·8 m.p.h. start to stop, a speed which will restore to the Western Region the distinction of the fastest start-to-stop schedule in Great Britain, temporarily ceded to the North Eastern Region by virtue of the latter's 67·8 m.p.h. run from Darlington to York in the summer timetable. But as the W.R. train in question is then booked to run the 36 miles from Reading to Paddington in 40 min., at 54 m.p.h. only, there will be ample margin for recovery of any lost time. Also the deceleration of the entire London Midland 2-hr. service between Euston and Birmingham to 2 hr. 7 min. down and 2 hr. 10 min. up will leave the Western Region with the four fastest London-Birmingham trains—the 9 a.m. down in 120 min., the 10.10 a.m. down in 123 min., the 9 a.m. up in 125 min., and the 4 p.m. up in 120 min.

The "Mayflower," 8.30 a.m. from Plymouth to Paddington, is to call at Reading instead of slipping without any increase of journey time, but the "Merchant Venturer," 4.35 p.m. from Weston-super-Mare, which is to do the same, will be allowed 5 min. extra, and reach Paddington at 8.5. p.m. Such an increase would have been unnecessary had it been found possible to curtail the latter's extremely liberal allowances of 20 min. for the 12·9 miles from Bath to Chippenham and 27 min. for the 16·7 miles from Chippenham to Swindon (38·7 and 37·1 m.p.h. respectively).

The 8.15 a.m. from Cardiff to Paddington will stop at Didcot instead of slipping, with arrival at Paddington unchanged, at 11.45 a.m.

The new diesel services between Birmingham, Worcester, Malvern, Hereford, Newport and Cardiff, and between Shrewsbury and Hereford, introduced in the summer, will remain practically unaltered save that buffet facilities will be withdrawn from the trains that included them on each route. The 3.5 p.m. from Paddington to Bristol, and the 6.10 p.m. back, withdrawn with the severe curtailments of many subsidiary and branch services that took place in the middle of the summer, are not to be reinstated, but despite the forecast of reduced services over all the Western Region main lines that was made at the time of the curtailments, it seems to have been found possible to maintain practically the entire express service without impairment, apart from the two Paddington-Bristol expresses mentioned—which shows remarkable judgment and ingenuity on the part of the traffic staff concerned. The only remaining alteration of note is that the 12.30 a.m. all-sleeping car train from Paddington to Plymouth and Penzance is to start at 12.15 a.m. and run 15 min. earlier throughout.

The winter issue of the Western Region timetables for the first time includes in full the service between Bristol, Gloucester, Cheltenham and Birmingham by the former London Midland main line, and also that between Bristol, Bath, Templecombe and Bournemouth West by the Somerset & Dorset Line.

A Case for Realism

NEWS of the closure of British Railways passenger and goods stations is becoming increasingly frequent, and the Regional timetables giving the forthcoming winter passenger timetables show the reductions in train services being made as an economy measure, and more particularly in the light of finding the £10 million a year necessary to meet the wages increase agreed earlier this summer. In the elimination of unremunerative services the British Transport Commission is following a vigorous, and, in the eyes of some people, ruthless policy. This applies to passenger traffic only. With goods traffic, measures are taken to deal with all traffic affected by the closing of a station, and these steps are carefully described by the Region concerned when announcing closure. The same is true in general of parcels traffic, though there seem to be cases where little attempt is made to cater for the small quantities of—doubtless unprofitable—parcels traffic lost when a wayside passenger station is closed.

No other policy is practicable in the case of goods. Merchandise traffic receipts in particular are at a low level, and everything possible must be done to create and to retain traffic. The alternative arrangements made to deal with traffic when stations, depots and sidings are closed are almost always as satisfactory to the consignor or consignee, involving only slightly longer road journeys, and more convenient ones in many cases, than did the depot or siding closed. The reduction in costs for British Railways is considerable.

Passenger traffic is another matter. Where complete services are involved, or alterations likely to change the character of the service provided, the matter is referred to the appropriate Transport Users' Consultative Committee. Every effort is made to ensure that alternative public transport is available, as in the case of the Midland & Great Northern Line, reported on page 220.

Announcements of the closing of most stations name convenient, usually fairly important, stations in the neighbourhood to and from which it is possible to travel; attention is drawn to the existence of bus services in the area, and often some indication is given of ways to reach the area formerly served by the closed station. No substitute passenger service is *necessarily* provided: that is the point. The Transport Act of 1947 lays down "the general duty of the Commission so to exercise their powers . . . as to provide . . . an efficient, adequate, economical and properly integrated system of inland transport," and also to conduct the undertaking and to levy such charges as to "secure that the revenue of the Commission is not less than sufficient for making provision for the meeting of charges properly chargeable to revenue, taking one year with another." Some critics maintain that in closing passenger stations or withdrawing passenger services from branch lines the Commission has not been fulfilling its statutory obligations. That the Minister of Transport & Civil Aviation, Mr. Harold Watkinson, does not agree with this view—and rightly so—is shown by his statement in the House of Commons shortly before Parliament rose for the summer recess. The relevant sentences are reproduced on page 210, in connection with comments on them by a correspondent. Mr. Watkinson pointed out that "the railways are no longer a monopolistic organisation with an obligation to provide all sections of the community with a railway service." It follows that the existence of other, competing forms of transport minimises the inconvenience or hardship to the public when railway facilities are withdrawn—though that is not to deny that a few people at least are bound to suffer. It must be remembered that withdrawals of complete passenger services, as opposed to reductions —sometimes drastic—in the number of trains and to closure of individual stations, are still comparatively rare; more drastic action in some cases might not be a bad thing for all concerned, including those railway users who sooner or later must accommodate themselves to a complete absence of railway service when this simply cannot be made to pay.

The attitude of the Minister and of the Commission moreover is not defeatist. Before any withdrawal or closure, the potentialities of the lines or stations concerned as feeders are fully explored. If it is considered that the passenger service might be rejuvenated with a railcar or railbus, steps are taken to introduce the appropriate vehicle as soon as one is available; but in some cases the area affords insufficient traffic to justify using one of these cars—and they are badly needed on many lines on which they can generate profitable traffic.

With a working loss on British Railways for 1958 of some £27 million, and only some £132 million available to be borrowed in respect of deficits this year and up to 1962 from the £250 million authorised by the Transport (Railway Finances) Act of 1957, drastic action must be taken to cut unnecessary expenditure. The whole community relies on an efficient railway system. If failure here and there, in the interests of small communities, to suspend unremunerative services, results in unnecessary expenditure, the whole population, including those communities, will be by that much the worse off in that British Railways are hindered in their task of moving coal, minerals and merchandise, of transporting millions of people to and from work, and of conveying on their lawful occasions, including holidays, the many thousands who use main-line expresses and diesel trains on more profitable lines—and of earning badly-needed receipts by providing these passenger services. In considering the words of the 1947 Act, "efficient, adequate, economical" applied to railway services, one must draw the line somewhere in considering branch lines and stations in descending order of importance to the railway and to the community. There is a limit to the extent to which a section of the population can expect to be served at the cost of the whole community. The present situation, and the growth of other forms of transport, mean that the line may have to be drawn higher than some people may like.

As to "properly integrated," the Chairman of the British Transport Commission, Sir Brian Robertson, recently admitted that more could be done in the sphere of passenger transport; but here, as with goods, the machinery already exists, largely in the existence of the Area Boards, for effecting improvements—when other, more important work has been done. Nor need it be assumed that such "integration" will result in an increase in the railway services provided, unless additional facilities are required to serve a genuine commercial purpose from the point of view of nationalised transport.

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of Correspondents)

Smoking in Trains

August 8

SIR,—The tone of Mr. Eccles' letter (your August 8 issue) coming from a stationmaster, makes me glad that during the past 10 years I have invariably dealt with offenders direct and never with a railway official.

Among stationmasters, however, there must be some who do not find it so difficult to appreciate the feelings of others, nor to believe the substance of their statements. Perhaps some of them, or their wives, are even asthmatic themselves.

Yours faithfully,

WILL LYNCH

32, Pield Heath Avenue, Hillingdon, Middlesex

Motive Power Policy

August 8

SIR,—In your August 1 issue you published a letter on this subject from Mr. J. H. Brebner, Public Relations Adviser, British Transport Commission. As to oil fuel supplies he observes that "even when the railway modernisation programme is fully operative, railway requirements will represent only a very small proportion indeed of the country's total consumption of oil and petrol."

To some minds this may be a soothing argument; but it is a very misleading one, because whilst the total oil fuel used in this country amounts to a big figure it is made up of comparatively small quantities used by this, that, and the other organisation for a variety of purposes. As the Scots say, it is the mickles that make the muckles; and almost every purpose for which oil is used is a small proportion against the total; but the result makes this country much too dependent upon a fuel from overseas.

The importance of railway transport, hitherto independent of overseas fuel, is so great that shortage of fuel would have a disastrous effect on the country quite out of proportion to the amount of oil used by a railway system that has made itself largely dependent on oil from abroad. Can we not remember periods of oil and petrol rationing and the restrictions resulting for road transport, and what a blessing it was that in these circumstances our railways operated on home-produced fuel and thus were able to cope with the heavy extra demands imposed upon them?

Surely the Government should regard the maximum use of indigenous fuel by the railways as an essential form of insurance or safety measure against the failure of imported fuel.

Yours faithfully,

J. FAULKNER

262, Dollis Hill Lane, N.W.2

The American Railway Crisis

August 7

SIR,—An article in your July 18 issue mentioned the prospect of a bumper wheat crop bringing some relief to the U.S.A. railroads. In the first 28 weeks of the year 43,000 more wagons were loaded with grain than in 1957. This increase of 3 per cent would have been larger if heavy rains had not delayed the harvest in Ohio and several Mid-West States. The loss of 839,300 wagons of coal and 672,970 wagons of ore blotted it out. Coal output was down 56 million tons, or 22 per cent, and overseas coal shipments in six months to June were 10 million tons, or 34 per cent below 1957. In June, export and coastal freight, apart from coal, passing through U.S.A. ports, was 24 per cent less than a year ago. Refrigerator loadings were 6·4 per cent behind last year, while 740 more flat wagons carried road trailers, an advance of less than one per cent.

The July 1 census of locomotive units found 511 out of 1,737 steam locomotives under repair (29 per cent) and 69 of 567 electric locomotives out of action (12 per cent), but only 1,191 of 27,616 diesels (4·3 per cent) were unserviceable. Of the total stock of 28,148 units fit for work, 26,424 (93·8 per cent) were diesels.

Over five months ended May, there was a slight improvement in the financial situation. A cut of 9·4 per cent in operating expenses brought the operating ratio down to 83 per cent, but net income of $72 million was almost 75 per cent less than in 1957. It was sad to see the Pennsylvania, with a deficit of $13 million and the New York Central with one of $14 million, heading a list of 34 railways, which failed to make ends meet. The end of the crisis is not yet in sight.

Yours faithfully,

YOUR CORRESPONDENT

Westminster, S.W.1

Unremunerative Services

August 12

SIR,—It was interesting to read, on page 144 of your August 1 issue, the answers by Mr. Harold Watkinson, Minister of Transport & Civil Aviation, to questions in the House of Commons on unremunerative railway services. His replies gave an unusually direct lead to the British Transport Commission in dealing with the problem of such unprofitable services. This seems to have been prompted by the present economic position of British Railways, which also is responsible for the new vigour with which this problem is being tackled within the industry itself. It appears that, when confronted by the hard facts of an adverse financial balance, even the highest authorities must put aside any soft-heartedness and adopt a stoical attitude of common sense.

However, it is a matter of conjecture as to how far this attitude will permeate the ranks of those responsible for the nation's transport services, and it remains to be seen whether the Minister's pronouncement about the obligations of the Commission in providing an alternative service will bear real fruit. After the salutary effects of the "Bluebell Line" case perhaps these words of the Minister will encourage the Commission in adopting a bolder attitude towards the thorny problem of unremunerative railway services so that the full economies may not be lost by delay or by subsidised alternative services.

Yours faithfully,

P. A. NUNN

49, Royston Park Road, Hatch End, Middlesex

[Mr. Watkinson's reply on July 23 included the following words: "I met the Chairmen [of the Transport Users' Consultative Committees] on June 24 and informed them that the Government intended to support strongly the Commission plans for eliminating from the railway system those services which are hopelessly uneconomic in modern transport conditions. The railways are no longer a monopolistic organisation with an obligation to provide all sections of the community with a railway service. The Consultative Committees, when considering proposed withdrawals, will continue to give full opportunity to local interests to express their views and . . . continue to take into account the existence of alternative services or the need for them. The Commission is under no obligation to provide an alternative service. Sir Brian Robertson has, nevertheless, assured me that it is willing to co-operate fully with the Committees in exploring how the needs of the public affected by withdrawal can best be met."

He also stated: "The Commission has to try to get its finances in order, and therefore we must not stand unduly in its way of cutting its costs."]

THE SCRAP HEAP

M.G.N. Tickets Collectors' Pieces

Since it was announced that the 180-mile railway, Midland & Great Northern Joint Line, is to close, remote wayside stations have done big business in tickets with the initials M. & G. N. The buyers: collectors.—*From the "Daily Express."*

Encouragement for Railwaymen

When Railway Day was celebrated in Hungary recently, more than £30,000 in prizes was distributed among principal railway workshops and railway staff; seventy Government decorations and 200 "Eminent Railwaymen" titles were awarded at a reception in Parliament; and an exhibition of safety equipment, working models, and suggested improvements was opened.

Well Earned Praise

It is infrequently that we are led to praise the work of British Railways. Our usual attitude we must admit is one of alert vigilance (those who smart under it are apt to call it captious criticism, but let that pass). But since a kind heart beats beneath this rugged exterior we take a genuine delight in praising when we think praise is due.

After yesterday's Southern Region crash (mercifully with no loss of life) the work done to sort out passenger traffic and get South London's—and Greater South London's—working millions home on time was exemplary. To everyone responsible for this remarkable switch from Charing Cross, Waterloo and Cannon Street to London Bridge, and the ease with which it was effected, London's congratulations and London's thanks.—*From the "Evening News" of August* 13.

Locomotive Diagram as Mural

One of the decorations on the tiled walls of the circulating area and booking hall at the new Würzburg Station, German Federal Railway, completed last year, is a life-size sectional elevation of one of the three-cylinder Class "44" 2-10-0 freight engines of the German Federal Railway. It is over 40 ft. long; and, as shown in the illustration below, is the centre-piece of other motifs of work and industry in Franconia.

Jubilee of New Zealand Main Line

There are at least three historic events associated with the completion of the North Island Main Trunk line of the New Zealand Government Railways between Wellington and Auckland; but it has been decided to observe officially the anniversary of November 6, 1908, the day on which the last spike was driven. The three dates are: August 7, 1908, when the first through passenger train, the "Parliamentary Special," left Wellington for Auckland; November 6, 1908, when the last spike was driven by the then Prime Minister, Sir Joseph Ward at Maunganui-o-te-Ao and the line officially declared completed; and February 5, 1909, when the Erua-Waiouru section, 30½ miles, was handed over to the Railways Department for operation and regular express services were started. The locomotives hauling the four expresses running between Wellington and Auckland on November 6 next will be decorated.

Railway Musicians

There has long been a connection between railways and music. Composers, such as Honegger, who wrote "Pacific 231," and executants, including cathedral organists, have taken, and continue to take, an interest in railway matters. Ballads on railway themes, composed in the early days of railways in the U.S.A., are now almost folk music; and the same is said to be true of some Russian and Portuguese songs, and to music in different parts of India.

Railwaymen in several countries have their musical societies, choirs, orchestras, and bands. A flourishing orchestral society is that of the London Midland Region of British Railways; its activities are recorded in our pages from time to time. The society profits by family talent: of two children of the leader of the orchestra, Mr. George Elmitt, one, Miss Mavis Elmitt, who has played with the orchestra, is now a professional pianist who is to give a recital in October, and her 14-year-old brother is a promising cellist, who will perform with the L.M.R. orchestra in December.

N.B.R. Adopts Sykes Apparatus

This week the North British Railway Company introduced on its underground system a novel signalling apparatus, known as the electric lock and block system. The mechanism is most simple. A spring is fixed on the rails inside the tunnel, and until the train has passed over it the signalman is unable to accept another train on his circuit, as his signals are electrically locked. No better method could be had for underground train signalling.—*From "The Financial Times" of July* 30, 1898.

[This refers to the adoption of the Sykes apparatus, which the N.B.R. came to use to a considerable extent, especially on sections including tunnels. The "underground system" is the lines in the Glasgow area. The "spring" is the treadle, or rail contact, used to release the signal backlock and in turn to control the sending of a second release to the signalbox in the rear.]

High Altitude Railway

The approach to Perene Colony is one of the reasons why so little has ever been heard of this remote outpost of Anglo-Saxon endeavour, and why so few people have ever visited it. The first part of the route is covered by train, on the Peruvian Corporation's Central line from Lima to La Oroya. This is one of the classical feats of railway engineering, for the antique locomotives, as decorative as the competitors in the Brighton Veteran Cars' Race, haul their loads up the bleak, arid canyon of the River Rimac at an average gradient of one in 20. At times, when a twist in the valley presents the traveller with a wall of bare rock 5,000 ft. high, it seems as if the ingenuity of the 19th-century railway builders must have been defeated. But the railway bores through the mountain, and reappears halfway up the rock face shunting backwards and forwards, herring-bone fashion, until the obstacle has been passed. The traveller may feel like heaving a sigh of relief when the summit is reached, but he would be well advised to take a whiff from one of the company's oxygen cylinders first, because the atmosphere at 16,000 ft. does not allow such an emotional luxury.—*From "The Times."*

Section of three-cylinder 2–10–0 *locomotive in the hall of Würzburg Station*

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

VICTORIA

South Dynon Goods Terminal

The new goods shed at South Dynon is 880 ft. long, 140 ft. wide and 26 ft. 6 in. high above rail level. It is of steel frame construction, roofed and walled with asbestos cement sheeting. Administrative offices and an amenities block are included. Three tracks traverse the shed, which can hold 35 four-wheel vehicles on each side. The centre track is used for shunting.

The shed, with its earth-filled floor and entrance ramps, provides an all-weather loading or discharging point, with goods under cover all the time. The whole of the area within the shed and in the immediate surroundings has been sealed to rail level to permit the fullest use of mechanical handling equipment. Entrance gates from Dynon Road are staggered with those for North Dynon to avoid delay to road vehicles.

South Dynon is expected to handle about 80,000 tons of galvanised iron a year, besides general merchandise from Darling Harbour, formerly dealt with at Montague Shipping Shed. This diversion of traffic will mean a considerable saving in handling costs, as it will obviate haulage over the Flinders Street viaduct and into and out of Port Melbourne Yard. It will be of decided benefit to Montague Shipping Shed which will revert to discharge and delivery of overseas cargo from vessels at Port Melbourne.

Galvanised iron will be handled by fork-lift trucks equipped with crane jibs as well as forks. The jibs have a lifting capacity of five tons. Their use will enable much speedier handling of the traffic.

Provision has been made for adaptation as a terminal for interstate traffic on the Melbourne-Sydney standard-gauge line. A third rail to provide for 4 ft. 8½ in. gauge has been laid throughout the sealed areas to obviate any disturbance of the sealing when standard gauge is provided. With the two sets of rails, the depot can also be used as a transfer point for both gauges, if required. Should expansion be necessary, a very large area is available.

INDIA

Station Names

Confusion has been caused in the past by different names for the same place or station being used by the railways, the Posts & Telegraphs Department (of the Central Government) and the State Governments. In 1953, therefore, the Ministry of Home Affairs issued uniform instructions to all the Ministries and to all the State Governments as to changes in the names of villages and towns. The procedure now adopted on the railways is in accordance with these instructions received from the Ministry of Home Affairs, which are also followed by the Posts & Telegraphs Department.

The names of places as adopted both by the post offices and the railways are now to be the same, as far as possible. A railway station is sometimes named after some important town which might be a few miles away from the station, *e.g.*, Nasik Road. The post office located in such a town is named after the town; but post offices nearer the railway station concerned might be named differently. Furthermore, on the railways, no duplication of names is permitted even although they may be in different States or on different railways, while this is not rigidly adhered to in the case of post offices and names such as Sultanpur (Burdwan), West Bengal; Sultanpur (Midnapur), West Bengal; Sultanpur (Azamgarh), U.P.; and Sultanpur (Surat), Bombay are permitted.

SYRIA

Rolling Stock from Eastern Germany

The General Manager of the State Railways, Mr. Mohamed El Alem, is reported to have stated that stock built in the German Democratic Republic (Eastern Germany) for the Syrian State Railways was "superior to other vehicles supplied from abroad."

C.P.R. Royal Train in the Rockies

Canadian Pacific Railway train which conveyed Princess Margaret from Vancouver to Banff, passing through Kicking Horse Canyon near Golden, B.C.

CANADA

Railway Financing Plan

The Transport & Communications committee of the Canadian Senate has approved a Bill to enable Algoma Central & Hudson Bay Railway Company to carry out a financing plan. The company proposes to retire its first mortgage income debenture stock and bonds and all arrears of interest, and also all its preferred stock. The Bill provides for obtaining the funds by creating and issuing $7,500,000 first mortgage bonds, $3,500,000 in debentures carrying stock purchase warrants and $5,600,000 par common. The Bill also allows for increasing common shares by 579,245 to a total of 1,000,000. The Bill has received a second reading from the Senate and will now go back for a third reading.

UNITED STATES

Payment for Mail Handling

After exerting pressure for two years, the railways in the Eastern States have obtained through the Interstate Commerce Commission an increase, effective from September 1, in the payment that they receive for the carriage of mail. Their application was for an all-

round 70 per cent increase; what they have actually obtained is an average increase of 30 per cent.

The additions are of 38.5 per cent for mail handled in trains which require 60 ft. or more of mail space and a lesser increase when smaller mail compartments are in use; 50 per cent extra for terminal handling; and 30 per cent for other services. It is estimated that the increase will be from $105,000,000 to $137,200,000 in the total mail revenue of the railways concerned.

Their claim has been strongly opposed throughout by the Post Office Department, which has contended that the higher rates would result in the diversion of mail carriage to other forms of transport.

Enlargement of Hoosac Tunnel

The Hoosac Tunnel, opened in 1875 and 4 miles 1,230 yd. long, on the Boston & Maine Railroad, is being enlarged to admit modern rolling stock ance equipment, it was decided to use built to a larger loading gauge. The tunnel has had to be kept open, and a further complication has been the formation of large amounts of mud on the floor, the result of old ballast mixing with ground water.

Because the area beside the track was restricted for manœuvring of maintentwo Caterpillar Traxcavators, equipped with side-dump buckets, to load material into hopper wagons. The side-dump bucket allows the hoppers to be loaded without Traxcavators having to turn and approach the side of the wagon from head-on. By this method, the wagons can be loaded faster, so that the train can move in and out of the tunnel more frequently to make way for scheduled traffic. The Traxcavators lump the spoil when the work train is out of the tunnel. About 20 cu. yd. of material must be removed after every 100 ft. of progress. The work is expected to finish by October.

ARGENTINA

Reduction in Second Class Fares

A further reduction of 10 per cent in second-class main line fares has been in force since the beginning of July on the Mitre, Sarmiento, Roca and San Martín Railways.

New Road Service to La Plata

The National Railways have introduced a new road service between Buenos Aires Retiro and La Plata, connecting with the trains of the General Mitre, General Pelgrano, and General San Martín Railways.

SWITZERLAND

Road Competition

Some 1,777,000 *tonnes* of international goods traffic were moved by road in Switzerland in 1957, or some 12 per cent of all imports and exports; of this about 55 per cent was to and from the inland river port of Basle.

Between 1932 and 1957 road movement of goods in the Swiss foreign trade rose by 116 per cent while conveyance of such freight by rail increased by only 39 per cent. The growth of road competition, more particularly in internal traffic, causes railways great concern. While the Swiss Goods Traffic Association is still acting as a co-ordinating body between the railways on the one hand and long-distance road transport interests on the other, the fleet of road vehicles greatly increased in 1957, offers an increasing transport potential; in addition, the advent of newcomers among long-distance road hauliers (due to their inability to find enough traffic in the short-distance field) has added to the complication of rate questions. It is feared that with the receding traffic generally on the railways and on the roads these difficulties are likely to increase.

HUNGARY

Refrigerator Vans

The first refrigerator covered wagon built to international standards in Hungary has been completed at the Győr wagon works. Thirty more will be finished before the end of the year. The factory is planning to build refrigerator vans for ferry traffic to Britain, which includes turkeys and other poultry at certain times of year.

Publications Received

Feeder Pillars.—This brochure, publication No. 396, describes the range of feeder pillars, manufactured by British Insulated Callender's Cables Limited. These are of two main types, standard and dwarf classes. The former have tailless units, the latter tail-type units. The cast iron carcases are of the built-up type, the sides, doors, canopy and base being separate castings, and thus easily replaceable. Copies of this booklet may be obtained from the company's head office at 21, Bloomsbury Street, London, W.1, or any branch office.

English Electric Traction.—This 48-page brochure describes representative examples of recent diesel-electric and electric locomotives and train sets which the English Electric Co. Ltd. has built completely or for which it has supplied the equipment. Each locomotive or train set is the subject of an illustration and a short technical description with principal dimensions and data. Locomotives mentioned which have been seen recently on British Railways include the 1,000-h.p. Type "1" Bo-Bo built at the Vulcan Foundry, the first main-line diesel-electric locomotive to be completed under the modernisation plan; and the prototype "Deltic" 3,300-h.p. design, of which 22 have been ordered for express passenger train haulage on the East Coast main line of the Eastern Region. The brochure is obtainable from the company at Marconi House, Strand, London, W.C.2.

Designed Daylight.—This brochure, published by Cordar Roof Lights, 34, Dean Street, Newcastle-upon-Tyne, 1, describes the range of roof light fittings manufactured by the company, for diffusing daylight to the interiors of buildings, and so on. Applications of the fittings have included some railway stations on the Continent.

Mechanical Seals.—Seals for every service are described in this illustrated catalogue, also designed as a reference book. The publication covers the installation, design, and selection of seals, besides other useful charts and information referring to seals manufactured by Crane Packing Limited, of Slough, Bucks. Copies may be obtained from the manufacturer.

Aluminium Development Association Directory of Members.—The 1958 edition of this publication, shows the names and addresses of the member companies of this Association, with corresponding details of administrative and sales offices. It also contains a guide to the products available, indexed for easy reference to those companies which provide them. Copies are available on application to the Aluminium Development Association, 33, Grosvenor Street, London, W.1.

All-Steel Curved Pan Conveyors.—A brochure published by Wharton Engineers (Elstree) Limited, Watford Road, Elstree, Herts, describes the range of W.S. all-steel curved pan conveyors which the company manufactures. A conveyor/elevator of this type is installed at the fully-mechanised coal depot at Palace Gates, Eastern Region, described in our issue of July 18.

All Points for Alfloc.—This booklet describes the world-wide water treatment service operated by the Alkali Division of Imperial Chemical Industries Limited. It explains the Alfloc system and how it works from the receipt of an enquiry from a customer. Copies may be obtained from the Alfloc Water Treatment Service, 4, Cromwell Place, South Kensington, London, S.W.7.

Material Handling by Ross.—Catalogue C, a booklet of 42 pages, describes the range of material handling equipment for which Ross Engineers Limited has been responsible in design and construction. These include complete handling plants, crushing plants, and wagon handling systems. Copies of the catalogue may be obtained from the company at 11, Walpole Road, Surbiton, Surrey.

Seventeenth International Railway Congress

Economic Working of Light Railways

Means to be adopted to reduce operating costs

THE report on means to be adopted to reduce the operating costs of light railways in the French-speaking countries and those which largely follow Continental practice, for consideration at the forthcoming International Railway Congress in Madrid, has been prepared by Dr.-Ing. Ernesto Stagni, Chief Inspecting Officer, Italian Ministry of Transport. This is the subject of Question 10 before the Congress. The corresponding report covering English-speaking countries and those in which British practice largely prevails, compiled by Mr. S. L. Kumar, Director, Research, Indian Railway Board, Ministry of Railways, Lucknow, was summarised in last week's issue.

With the development of road transport, Dr. Stagni observes, the functions and even the meaning of light railways have undergone a profound change, so that today it is difficult to define a light railway. Whereas formerly so-called light railways could be distinguished mainly by their constructional characteristics, today it is essentially the lightness of traffic which necessitates specially inexpensive methods of operation, which differ from those of standard railways. "Light railway" is now taken to mean a railway with little traffic, or even a railway showing an operating deficit, which is quite contrary to the original meaning.

The essential problem facing light railways is economy of operation. The very existence of many of these lines depends on finding a more of less satisfactory solution to this problem. Once a minimum of safety conditions has been met, every other problem should be considered essentially from the viewpoint of obtaining maximum operating economy.

Operating Characteristics

Seventeen replies were received to the questionnaire and, after examination, the reporter has grouped the light railways into three distinct categories each having a different operating problem. The categories are: (*a*) colonial type railways; (*b*) European lines or small systems of local interest, generally operated by private companies; and (*c*) secondary lines forming part of the European national railway systems generally operated by the State.

Replies from administrations under category (*a*) show that even where road transport has reached an appreciable degree of development, and despite the fact that some of them show a deficit, the lines completely meet the functions for which they were built, which are often essential for the country in question. Light railways are still very active in these cases and the question of their continued existence is never in the balance.

Replies from category (*b*) railways reflect the most striking aspects of railroad competition which involves the survival of these lines. Conditions differ. Some systems still continue to fulfil essential functions and are irreplaceable, but the intensive competition they meet with from road transport makes the problem of technical and financial rationalisation extremely urgent, even so far as the possible abandonment of these lines and replacing them by road services.

Replies from administrations in category (*c*) show that the problems of secondary lines are somewhat similar to those which affect the lines of the previous category. The fact that they are operated in common with the main lines of the system often makes it impossible to judge the real position of the secondary lines. Common operation often makes it difficult to abandon the methods and system of operation applied on the main lines.

Construction of Light Railways

The length of line built during the last 24 years amounts to 27 per cent of the existing total for category (*a*), 1.5 per cent for category (*b*) and 0.6 per cent for category (*c*) light railways. The percentage of mileage under construction, or projected in relation to the present total, are respectively 30 per cent, 1 per cent, and nil. This shows the decline of secondary railways on the Continent of Europe, and measures being adopted to deal with the light railway situation. These are classified in the questionnaire as: simplification of operating; replacement of rail by road service; and closing the railway completely.

Replies show that simplification of the operating as a method of reducing costs is followed by all the railways, and involves the reduction in the staff required. The measures taken to achieve this reduction are the introduction of technical improvements, alterations in services, or even a wholesale abandonment of certain services.

One common objective is the delegation of several duties, formerly carried out by several part-time employees, to a single employee working full-time. This is the principle of what the reporter calls the "single traffic regulator system," which has been used for some time under various names on many of the secondary European lines.

With this system traffic movements for a given section of line are concentrated on a single station where the traffic regulator operates. In the other stations, no longer staffed, the traffic duties are carried out by the train crews, and other duties by staff employed under special contract.

Besides the unstaffed stations there are others which are no longer occupied at all. Of the duties which remained, some such as ticket issue and operation of points, are now performed by the train crews. Consignment of goods and care of premises is the responsibility of the nearest crossing keeper, or even the buffet or bookstall staff. Train crews are reduced by making one man responsible for various duties. Usually the duties of guard and ticket collector are combined, and the driver takes over certain secondary duties such as looking after and handling the mail and parcels.

Road Services

Replies from administrations in categories (*a*) and (*b*) show that cases of abandonment of rail services after replacement by road services are much more frequent than complete closure. The regular replacement services are nearly always operated by the railway administrations themselvs.

Closure of the railway and replacement by road services is generally strongly opposed by the public and local organisations, but after a period of operation the advantages of the new service are recognised, and it is found to be sufficient to carry all the old railway traffic; in many cases there is even an increase in passenger traffic.

Goods traffic on the other hand always shows a decline, even when there are replacement services connecting with the railway stations. For this reason prudence is necessary in deciding to abandon lines with any appreciable amount of freight traffic.

Permanent Way

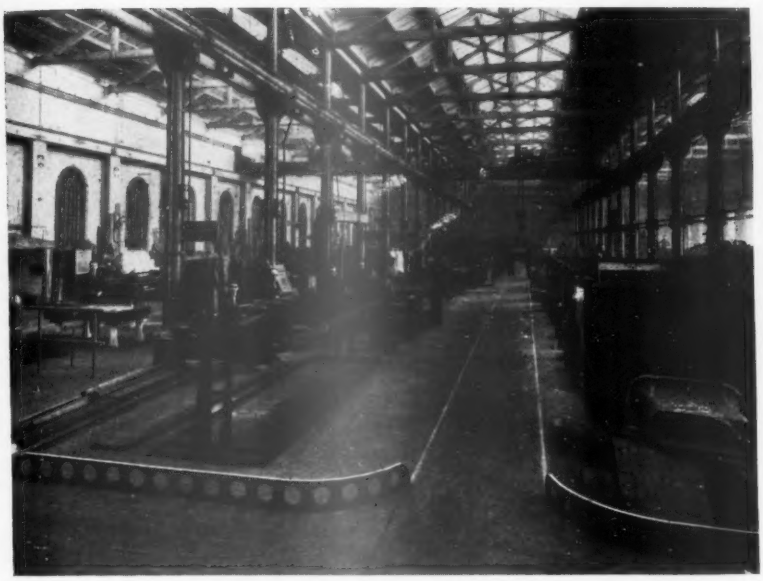
Most category (*a*) railways are on the metre or 3-ft. 6-in. gauges; in those of category (*b*) rather more are built to narrower gauges. Standard gauge (4 ft. 8½ in.) however predominates in the case of category (*c*) lines. The most usual weight of rail is 36 kg. a metre (79 lb. a yd.) in the case of standard gauge although 27 kg rail is still widely found. In the case of narrow gauge lines 55, 60 and 66 lb. rails are used.

The radii of curves are rarely less than 10 ch. in the case of standard gauge and 5 ch. in the case of narrow gauge. Maximum gradients do not generally exceed 1 in 33 on standard gauge lines, but may be as much as 1 in 18 and 1 in 14 on narrow gauge lines; with artificial adhesion they are as much as 1 in 8 in Italy and up to 1 in 3 in Switzerland.

(*Continued on page* 216)

Boiler Shop Reorganisation at Crewe Works, L.M. Region

Re-designed layout of plating and welding sections to improve flow of work and reduce accidents



Section of shop producing diesel shunter fabricated sub-assemblies, showing typical gangway and warning notice on crane

SOME reorganisation has recently been carried out in the boiler shop at the Crewe Locomotive Works of the London Midland Region covering the plating and welding sections. These departments are concerned with the preparation and fabrication of sub-assemblies for locomotive construction and the welding of fabricated components generally.

The aim throughout the reorganisation has been towards a progressive flow of work, the improvement of working conditions and prevention of accidents. The provision of improved accommodation for tools and small stores, and better facilities for handling and storage of gas cylinders, has also been carried out.

The gangways of the shop have been clearly defined by means of white lines painted on the floor in judicious combination with fabricated steel markers. This ensures that clear passage is maintained for both pedestrian and motor traffic and facilitates movements about the shop.

The markers are simple structures manufactured in welded steel plate and suitably painted, and the accompanying illustration shows these together with a view of a typical gangway.

Welding Compounds

A unit-type of welding compound has been adopted which although having robust construction and permanent appearance can be dismantled and re-erected without difficulty should re-siting be necessary at any time. The components, tubular stanchions and sheet-metal walls, are bolted together. A feature of this form of construction is that the components can equally well be used for the erection of draught screens or other partitions.

The internal surfaces of the compounds are painted in a matt finish in order to obtain a low degree of light reflection and so minimise the effect of glare of the welding arc. Provision is made inside each compound for the display of working drawings so that these can be consulted readily during fabrication. The drawing is held at a convenient height by means of spring clips attached to one of the wall panels.

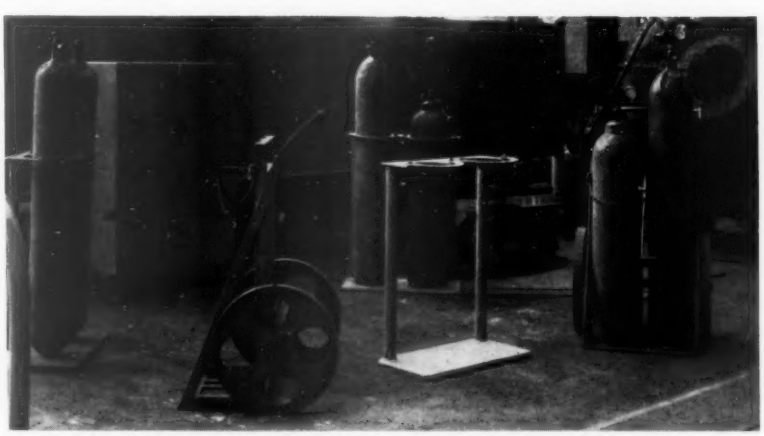
The flow of work has been arranged on progressive lines, and a typical example is shown in the illustration, at the top of this page, of the layout for production of fabricated sub-assemblies for diesel-electric shunting locomotives. All assembly fixtures and similar special equipment have been painted in maroon in order to make them readily distinguishable, and each station is further identified by a name-board which is attached to an adjacent crane stanchion and which indicates the particular components being dealt with in that area of the shop.

Gas Cylinder Station

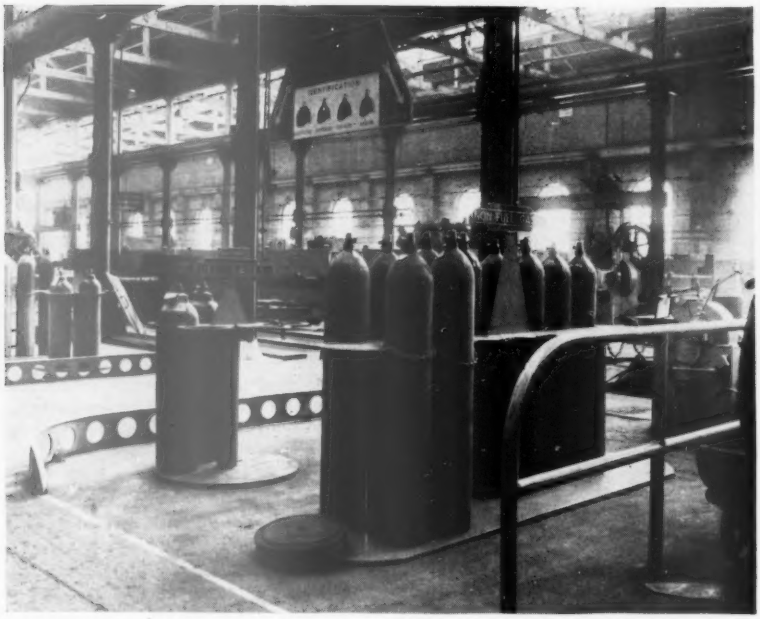
Because of the increase in the variety of gases used in production processes, special attention has been paid to the identification, storage and handling of gas cylinders with a view to obtaining the best form of handling and control with a maximum degree of safety. This has resulted in a gas-cylinder station being set up in a convenient position in the shop.

As can be seen in the illustration, the station is divided into two sections embracing full and empty cylinders respectively, and each section is further divided between fuel and non-fuel gases. Suspended in a central position over the station is a large notice board which states the three major precautions necessary in the handling of gas cylinders; and an identification panel showing the standard colour-code used to identify the content of cylinders.

The design of the stands for the accommodation of both full and empty cylinders provides for secure holding of the cylinders in the vertical position so that they are readily identifiable and have their taps in the most accessible position. To prevent their receiving shocks during unloading and handling operations special damping mats have been provided.



Specially designed gas cylinder stands and trolleys



Gas cylinder station, showing sections for empty and full cylinders and safety notice board

At ten strategic points throughout the shop a long-handled gas cylinder key has been provided and clearly labelled. Thus, in the event of any emergency involving the necessity to close a gas cylinder cock from a distance greater than that afforded by the normal gas cylinder key, a suitable tool is available and readily visible.

Each permanent working position in the shop is provided with its own stand for cylinders, avoiding the risk of cylinders being accidentally knocked over. For temporary working positions and for the general transport of cylinders around the shop, special trucks fitted with shock absorbing springs have been provided, and these enable the cylinders to be located safely in the upright position without being subject to shock or to the risk of being knocked over.

To economise in floor space while providing adequate storage for individual workmen's tools and so on, four-compartment tool boxes have been provided to replace the single boxes previously used.

General user tools and small consumable stores are now dispensed from a central store, which also embraces a reclamation depot in which nuts, bolts, and so on, are reconditioned and made available for further use.

First Aid Station

Opportunity has been taken to instal a first-aid station, which has proved of considerable value in the prompt treatment of minor injuries. Emphasis has, however, been placed wherever possible upon the need for accident prevention, and "goggles" signs have been mounted on the overhead cranes in the manner visible in the upper illustration on the previous page to serve as a constant reminder of the need for goggles wherever eyesight is endangered. The fact that the cranes are constantly moving up and down the shop results in these signs being seen in ever-varying positions, and it is felt that this impresses their purpose more frequently in the minds of the observers than would fixed signs.

Regard has been paid to the joint consultation procedure in effecting this reorganisation, and the improvements outlined in this article have been carried out with the full co-operation of the staff concerned.

Economic Working of Light Railways

(*Concluded from page* 214)

Track maintenance by purely mechanical means is not very extensive. In general, the operations of screening, repacking, and tamping are done by hand whilst such operations as drilling wooden sleepers and tightening the coachscrews are mechanised. Certain small systems are, however, carrying out trials with mechanical tampers.

On the other hand the welding of rails, by arc welding or aluminothermic, is fairly widespread. In general the saving in maintenance costs due to the smaller number of joints and the recovery of materials makes up for the cost of welding.

Motive Power

Except in Switzerland and Austria, and to a lesser extent in Italy and Belgium, electric traction is not widely used on the secondary lines covered by the replies, but steam is giving way to diesel traction.

There are no lines or systems operated completely by diesel traction except in the case of category (*a*) railways.

Of the diesel locomotives used, a single engine four-axle double-bogie type predominates for mixed services, with an axle load of around 13 *tonnes* and an installed power of 550 to 850 h.p. Although this type of unit takes on different forms on the various railways, and for different gauges, especially as regards the type of engine and transmission, it meets a well defined need, which takes into account the type of service required.

Amongst the railcars, there are various types in service with different characteristics. Their power varies between 130 and 450 h.p. In general up to 150 h.p. the engines are of the standard type used in road vehicles, but above this power they are designed for the railways. The different powers which vary from 200 h.p. to 450 h.p. show that contradictory requirements have not yet made it possible to obtain any standardisation. In Italy, experimental standardisation has been attempted, covering the number, arrangement, and type of compartments, and length of bodies, but not the powers.

DIESEL ENGINEERS & USERS' ASSOCIATION CHANGE OF ADDRESS.—The address of the Diesel Engineers & Users' Association is now 18, London Street, London, E.C.3; tel. Royal 2393.

OLD TRAFFORD GOODS DEPOT TO CLOSE.—British Railways, London Midland Region, announces that the goods depot at Old Trafford, on the M.S.J. & A. Line, will be closed from September 1. Full loads will be dealt with at Cornbrook and Manchester and livestock at Stretford Station. Other traffic will, as now, be dealt with at Manchester.

BRITISH STANDARD ON TERMINAL MARKINGS FOR D.C. TRACTION MOTORS AND CONTROL EQUIPMENT.—Because of the wide range of terminal markings covered by the 1938 edition of B.S. 822 and to include further terminal markings in a revision of the standard, a new edition of the standard is being issued in a series of parts. Part 2, now available, deals with terminal markings for d.c. traction motors and control equipment. It specifies the terminal markings and apparatus coding for traction motors complying with B.S. 173 and d.c. traction control equipment complying with B.S. 2618. An advantage of this form of presentation will be its "flexibility," by which it is hoped that parts giving terminal markings for apparatus covered by newly-issued British Standards will become available as the specifications for the apparatus are published. Similarly, a speedy revision of individual parts will now be possible. Copies of B.S. 822, Part 2, can be obtained from the British Standards Institution, Sales Branch, 2, Park Street, London, W.1; the price is 3s.

Further Design of Railbus for British Railways

Four-wheel 112-h.p. vehicle with bus-type construction, rubber suspension, and disc brakes

One of two 112-h.p., 13½-ton Bristol/E.C.W. railbuses for British Railways, showing floor set lower than standard

TWO more light-weight diesel railbuses built by Bristol Commercial Vehicles Limited in conjunction with Eastern Coach Works Limited, have now been delivered to British Railways. Both the joint builders are road undertakings in the ownership of the British Transport Commission acquired with the Tilling Group at Nationalisation in 1948.

One of the vehicles was on show at Marylebone last Thursday. It can seat 56 passengers in two saloons and has a tare weight of some 13½ tons. It is powered by a Gardner 112-h.p. diesel engine which enables a maximum speed of 50-55 m.p.h. to be attained.

The leading particulars of the railbus are as follow:—

	ft.	in.
Length over bumpers	42	7
Length over end panels	42	4
Width over side panels	8	10
Inside width	8	6½
Height of floor from rail, laden ..	3	8
Interior height, floor to ceiling ..	7	8½
Wheelbase	22	0
Wheel dia.	2	10½
Tare weight, approx.	13½ tons	

The design and construction is based on principles used in the manufacture of Bristol/Eastern Coach Works passenger road service vehicles and both the upholstery and decoration of the saloon conform generally to the Eastern Coach Works standard bus practice.

Some features which are new or unusual to British Railways vehicles have been incorporated: these include resilient wheels, and "Monitor" disc type brakes.

Construction

The general construction is based on an integral design having an all-steel underframe; the body is constructed entirely of aluminium alloy extrusions and panelling, and is integrated with the underframe, to give maximum stiffness. Sound and thermal insulation is arranged by filling the space between the interior and exterior panels throughout with a light-weight plastic insulating material. Acoustic panels, 2 in. in thickness, are fitted below the floor, and the floor is covered throughout with sound deadening material below the wearing surface. All the windows are safety glass glazed by the Eastern Coach Works Fastflex system. Six hopper-type ventilating windows are fitted to each side of the body.

Seating in each saloon faces forward, being arranged two-and-three across the body. The interior is finished in cream leather-cloth with green moquette on the seats and the ceiling is enamelled white.

Power-operated sliding doors, one on each side of the body, are under the control of the driver.

Heating is provided by a Smiths oil burning heater, the warm air being ducted to each passenger compartment and to the driver's compartments.

Driving position of railbus, showing layout of controls

Arrangement of saloons with central vestibule and driving cab on left at each end

Standard head-code lamps are fitted at each end of the body, with a headlamp. No buffers are fitted but two tubular units at standard buffer height and width, connected directly with diagonal struts to the main longitudinal frame members, support a bumper bar.

Power Unit

The engine is a Gardner 6 HLW six-cylinder of 8·4 litres capacity: it delivers 112 b.h.p. at 1,700 r.p.m. and is flexibly mounted below the body floor at the centre of the vehicle. The drive is transmitted through an S.C.G. 18-in. fluid flywheel unit which incorporates a centrifugal lock-up clutch giving a positive drive at speeds above 700 r.p.m. The drive from the clutch to the gearbox is through a short cardan shaft embodying a freewheel unit. The gearbox itself is a five-speed epicyclic R.11.B. also by Self Changing Gears Limited, incorporating an overdrive as the fifth gear step. The box is arranged for fully-automatic gear selection and engagement by the S.C.G. VS automatic control system. Gear engagement is by air pressure controlled by Westinghouse electro-pneumatic valves operating in response to signals from the VS control.

The drive continues via another cardan shaft to the double-reduction final drive unit. The single driving axle case is a Kirkstall " pot "-type steel forging. The driving axle is similar to a bus or heavy lorry axle, except that it has no differential. There are two spiral bevels for forward and reverse, which are engaged by dogs operating from air cylinders. An interlocking device is fitted which prevents any movement of the vehicle until the dogs are correctly engaged. A manually-operated neutral position is provided to allow the vehicle to be towed if necessary. The wheels on the trailing axle can revolve independently.

Wheels are resilient, the rims being flexibly mounted relative to the wheel centres by a system of rubber bushes. They are manufactured in Sweden by Svenska Aktibolaget Bromsregulator.

Suspension

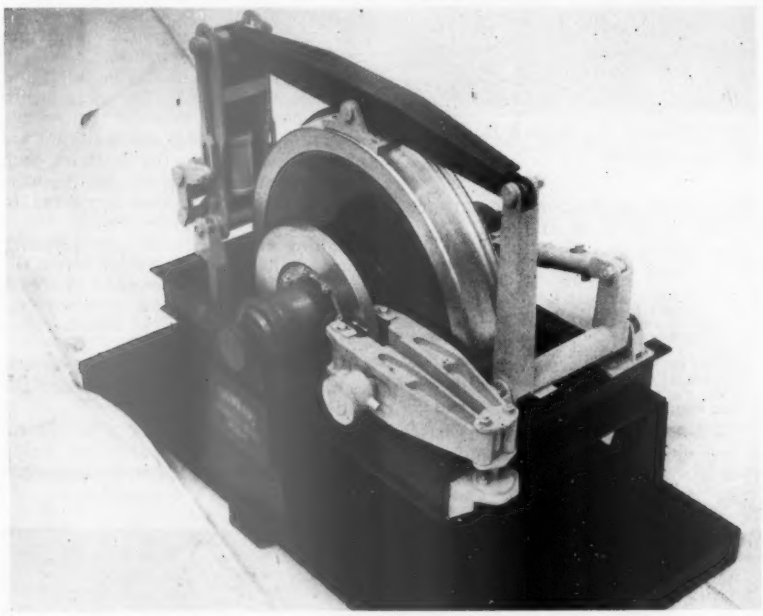
Suspension is by Metalastik rubber units in two stages. Each axle is attached to a subframe through two pairs of chevron-type rubber sandwiches, while the main structure is supported from the subframes by eight Metalastik rubber spring units, four at each subframe. In side elevation the axes of the spring units make an angle of 15 deg. with the horizontal and the load is taken by the rubber in compression and shear. Damping is by separate vertical and horizontal telescopic hydraulic units and brake torque reaction links are fitted at both axles.

The radiator, of the flattened tube type, is suspended below vehicle floor between engine and trailing axle. A header tank and filler cap are mounted at the side of the vehicle; the cap is accessible through an aperture in the skirt panel.

One 38-gal. fuel tank is mounted below floor level at one end of the vehicle and supplies both the engine and the combustion heater.

To obviate the measurement of the oil level by a dipstick, an engine oil dispenser has been fitted which automatically tops up the oil sump from a reservoir tank. A sight glass gauge is visible from the outside of the vehicle and the reservoir tank has to be filled up occasionally.

The control system has been evolved by Bristol Commercial Vehicles in collaboration with Westinghouse and Self Changing Gears. Westinghouse pneumatic equipment is used for throttle and brake controls and for gearbox operation. The transmission control is fully automatic from standstill to maximum speed. Indicating instruments mounted on the driver's control panel include an engine cooling water thermometer, air pressure gauge and speedometer and mileage recorder. Windscreen wipers are of the Trico F.P.K. heavy duty type.



Model of Dunlop Monitor disc brake, showing principal components

Disc Brakes

The Dunlop Monitor brake system is arranged for pneumatic/hydraulic operation of discs at each wheel. An accompanying illustration shows the arrangement of the brake mechanism.

A beam carrying a monitor shoe is pivoted on two vertical links, which in turn pivot about their mounting brackets. An air operating cylinder is positioned in one vertical link which brings the monitor shoe into contact with the wheel rim, thus causing the vertical links and beam to swing in the direction of wheel rotation.

An extension arm from the second vertical link energises a hydraulic double-acting master cylinder, which supplies fluid under pressure to the caliper operating cylinder and forces the friction pads into contact with the disc. The air supply to the brake operating cylinder is controlled manually by the driver's lever. Each brake is independent although all brakes are applied together.

Pad clearances with brakes off are automatically maintained at a constant amount. The pads are changed when fully worn by removal of a split pin and nut, allowing the carrier plate to be withdrawn; the caliper arms are then opened by the tool provided and the new pads secured in position.

Electrical Equipment

The battery is an Exide type 3 BMF 17/2, of 296 A.-hr. capacity; this is charged by a C.A.V. a.c. generator type 824/2, via a rectifier and 24 V. d.c. control board. The alternator is driven by vee-belt from the front end of the gearbox.

Subcontractors for the railbuses include:—

Battery	Exide Drydex Batteries
Alternator and rectifier	C.A.V. Limited
Warning horn and windscreen wipers	Trico-Folberth Limited
Gearbox and control gear	Self Changing Gears Limited
Pneumatic equipment	Westinghouse Brake & Signal Co. Ltd.
Engine	L. Gardner & Sons Ltd.
Monitor disc brakes and Dunlopillo seat filling	Dunlop Rubber Co. Ltd.
Rubber suspension units	Metalastik Limited
Telescopic dampers	Girling Limited
Hydraulic auxiliary throttle control	Automative Products Co. Ltd.
Resilient wheels	Svenska Aktiebolaget Bromsregulator
Glass	Pilkington Bros. Ltd.
Seat frames and sliding door pneumatic gear	Deans & Son (Yorkshire) Ltd.
Droplight windows	Beckett, Laycock & Watkinson Limited.
Heater	S. Smith & Son Ltd.
Moquette	T. C. Firth (1955) Limited
Saloon lighting equipment	Lewis Dixon Limited E. W. Matthews Limited
Drivers' seats	A. W. Chapman Limited
Headcode lamps	B.M.A.C. Limited

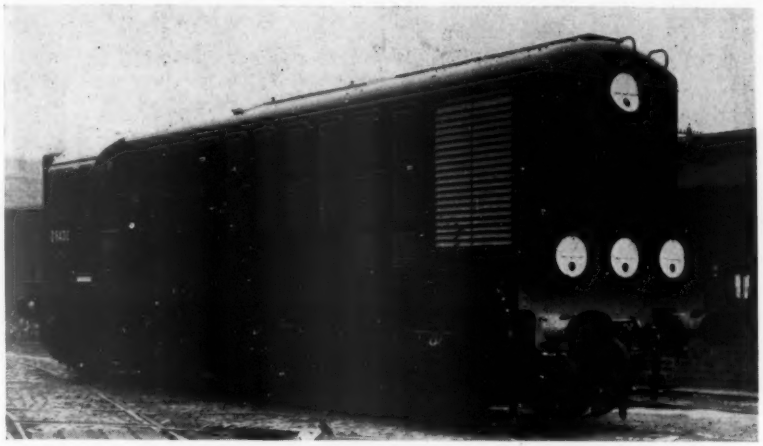
Light-Service Diesel-Electric Locomotives for British Railways

North British Bo-Bo, 68-ton design for Eastern Region

Five classes of diesel locomotives of 800-1,000 b.h.p. were ordered in the initial stage of the British Railways modernisation programme at the end of 1955. Delivery of two of these, the English Electric 1,000 b.h.p. and B.T.H./Paxman types, has already been effected; delivery of the third, the N.B.L./Paxman/G.E.C. 800 b.h.p. class, has now begun, with units allocated to the Eastern Region. The engines in this batch of 10 are duplicates of those in the 10 B.T.H. machines; and like those locomotives, the new machines, Nos. D.8400-8409, are of Bo-Bo axle arrangement with a single cab close to one end. As the envisaged duties are principally in connection with freight trains, no train-heating equipment is installed.

Of quite conventional conception and detail design, these units have leading dimensions and particulars as follow:

Axle arrangement	Bo-Bo
Top speed	60 m.p.h.
Service weight	68 tons
Wheel dia.	43 in.
Bogie wheelbase	8 ft. 6 in.
Bogie pivot pitch	20 ft.
Length over buffers	42 ft. 6 in.
Starting tractive effort (28 per cent adhesion)	42,000 lb.
Continuous rated tractive effort	20,000 lb.
Fuel capacity	490 gal.



North British Type "1", 800-h.p. Bo-Bo diesel-electric for light-service duties in Eastern Region of British Railways

Construction

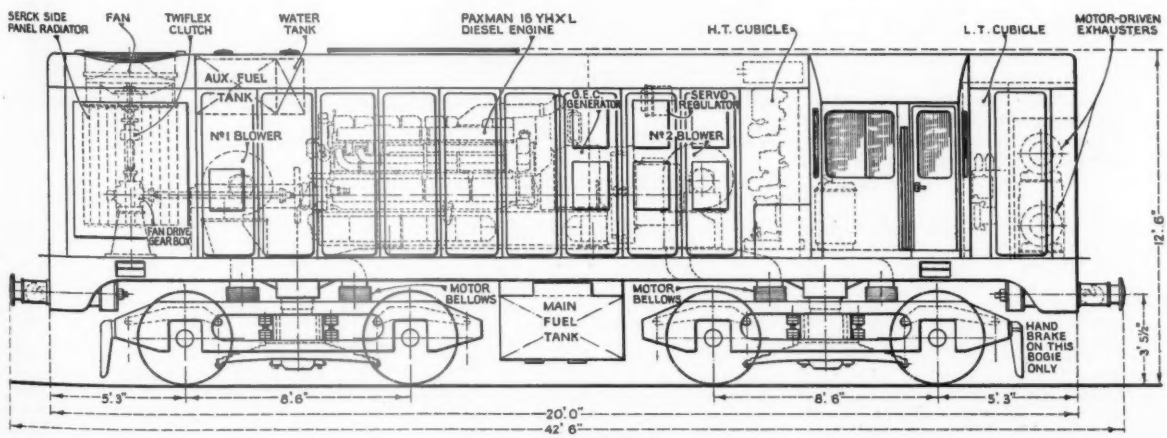
The underframe is of standard rolled sections but with cast-steel dragboxes at the ends. The bogies are of swing-bolster form, each with a dished centre pivot through which are transmitted the superstructure weight, the pivoting action, and the traction and braking forces.

The side frames are of flanged plates, formed into box section, and along the centre line of each frame is a laminated spring forming the primary suspension for the SKF roller-bearing axleboxes. The connection to the axleboxes is via equalising beams, and there are helical auxiliaries surrounding the outside hangers. Bolster suspension is by two groups of helical springs having rubber auxiliaries.

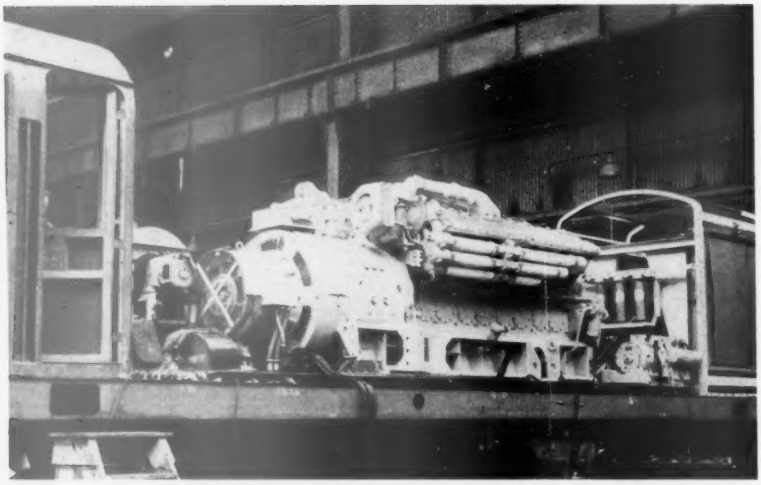
Brakes

Braking comprises an Oerlikon/Davies & Metcalfe straight air brake with vacuum equipment for the train brakes. Two 8-in. cylinders are mounted on each bogie to operate the clasp blocks on each wheel, and these cylinders are carried transversely on the headstocks. The Oerlikon three-cylinder two-stage compressor, driven by a Crompton Parkinson motor, is located in the forward end of the engine compartment; for the vacuum brake there are two Reavell exhausters, and these, with their G.E.C. driving motors, are housed in the short compartment behind the cab. These auxiliary motors are fed from the auxiliary generator via D.P. 123 A./hr. batteries.

Power comes from a Paxman 16YHXL engine which, with the main generator, is carried on a four-point resilient mounting beneath the welded steel combined sump and common underbed. This engine is the modern four-valve-head direct-injection model of the well-known 7 in. by 7¼ in. cylinder engines which date back to 1938 and have been from time to time revised in the successive RPL, RPH and YH classes to take advantage of experience and modern practice. The maker's normal traction rating is 1,000 b.h.p. at 1,250 r.p.m., but to suit the power requirements of this particular locomotive class, the power setting has been arranged at 800 b.h.p. and 1,250 r.p.m. Engine weight dry is about 12,800 lb. and specific fuel consumption at full load about 0.38 lb. per b.h.p.-hr. This 16-cylinder vee-engine has fork-and-blade connecting rods, welded steel



General arrangement of 68-ton N.B.L/G.E.C. diesel-electric locomotive



Locomotive under construction, showing cab framework (left), engine-generator unit, and radiator housing (right)

crankcase, cast iron cylinder blocks, individual cast aluminium-alloy cylinder heads, and aluminium-alloy pistons. Pressure-charging is effected by twin Napier MS.100/3 exhaust-gas turbo-blower groups at the driving end.

Cooling of engine water and lubricating oil is effected by two Serck side radiator banks, from which trunking leads to a roof-mounted fan. The drive is from the free end of the main engine, via Layrub couplings and cardan shaft, a right-angle gearbox and a Twiflex centrifugal clutch. The engine fuel system includes a 340-gal. main tank below the underframe, a Dowty fuel transfer pump, and a 50-gal. service tank in the roof.

Electrical Equipment

To the engine is direct-coupled a G.E.C. six-pole self-ventilated main generator with a continuous rating at 1,250 r.p.m. of 505 kW., 1,700 A., 290 V. Each field pole carries windings for self excitation and separate excitation, a counter-compound series winding, and a starting winding. The overhung auxiliary generator is of 350 kW. continuous rating, 318 A., 110 V.; it is a compound-wound machine fitted with a Newton automatic voltage regulator. Current from the main machine is fed to four force-ventilated nose-suspended traction motors connected permanently in parallel, and with an individual continuous rating of 152 h.p., 435 A., 300 V. at 420 r.p.m. Each of the two traction-motor blower groups has a 7·6 h.p. motor running at a top speed of 2,465 r.p.m.; these groups are not controlled by contactors, and run up to speed as the voltage of the auxiliary generator builds up. The four traction-motor circuits are controlled by individual electro-pneumatic contactors and overload relays; and an advanced degree of field weakening is provided in three automatic steps, available on controller notch 3 and upwards. Backward transition also is fully automatic. All the main control gear is housed in one cubicle, which contains also a wheel-slip relay; and the auxiliary control apparatus is grouped in another cubicle.

Sub-contractors for the locomotives include:—

Electrical equipment ..	General Electric Co. Ltd.
Diesel engines	Davey Paxman & Co. Ltd.
Radiators	Serck Radiators Limited
Brake gear	Davies & Metcalfe Limited
Speedometers	British Thomson-Houston Co. Ltd.
Steel castings	Carntyne Steel Castings Limited
Fuel transfer pump ..	Dowty Hydraulic Units Limited
Bogie laminated springs	Griffiths & Sons Ltd.
Fuel tank contents gauges	K.D.G. Instruments Limited
Fan drive cardan shafts	Laycock Engineering Limited
Fire extinguishing equipment	Pyrene Co. Ltd.
Brake and engine gauges	Smiths Industrial Instruments Limited
Roller-bearing axleboxes	Skefko Ball Bearing Co. Ltd.
Fan drive clutch ..	Twiflex Couplings Limited
Windscreen wipers ..	Trico-Folberth Limited
Air filters	Vokes Limited

Fully duplicated controls in cab provide for control of movement in either direction

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ALTERNATIVE SERVICES FOR M.G.N. LINE AREA.—The Eastern Area Board of the British Transport Commission has announced that proposals for closing the Midland & Great Northern Section of the Eastern Region will be submitted to the Transport Users' Consultative Committees concerned on September 15. Agreement has been reached with road undertakings to operate buses between Peterborough, Wisbech, Kings Lynn, Melton Constable, Yarmouth and Norwich; and between Spalding and Saxby. This will ensure continuation of a public service in areas where train services are to be withdrawn. Certain lines are to remain open for freight traffic, but with reduced status, and with the closing of certain intermediate stations.

IMPROVED METHOD OF LUBRICATING REAR AXLES OF L.T.E. BUSES.—The London Transport Executive has started a large-scale test of a method of lubrication of rear axles of its buses. This is hoped ultimately to lead to savings in fuel costs of the order of £120,000 a year. The test involves a fifth of the L.T.E. bus fleet, 1,355 double-deck vehicles, and the immediate saving is expected to be £20,000 a year. The rear axles of these vehicles are to be lubricated by an oil which is basically castor oil with certain additives in place of the mineral oil normally used for buses and other road vehicles. Limited tests have so far shown an improved fuel consumption of 2-3 per cent attributed to the greater lubricity of castor oil which reduces friction in the rear axles.

RAILWAY NEWS SECTION

PERSONAL

Mr. M. A. Rao has been appointed Senior Deputy General Manager, Eastern Railway of India.

Mr. P. Farnan, who, as recorded in our May 30 issue has retired as Secretary, Victorian Government Railways, Australia, joined the service in 1910. His wide staff experience in the rolling stock branch included service in both country and metropolitan areas. He occupied a senior position during the difficult administrative times of the 1930 depression. In 1937, he joined the Secretary's Branch and subsequently served in practically all phases of staff work. During the 1939-45 war Mr. Farnan was closely associated with the release of staff for war service. On two occasions in recent years he organised and directed overseas recruiting campaigns for the department. He later visited the United Kingdom and several countries on the Continent on a recruitment programme. Mr. Farnan was appointed Secretary to the Victorian Government Railways last year.

Mr. P. Farnan
Secretary, Victorian Government Railways, 1957-58

Mr. A. Gilmore
Appointed Secretary, Victorian Government Railways

We regret to record the death, in New York, at the age of 90, of Mr. James Forgie, who was associated with the construction of the City & South London Underground Railway and with the Pennsylvania Railroad tunnels under the Hudson and East Rivers.

Mr. J. Handley, Stationmaster, Derby (Midland), London Midland Region, has been appointed Stationmaster, St. Pancras. He succeeds Mr. G. W. Morrison, who is retiring.

We regret to record the death of Mr. Thomas Brisbane Meikle, Scottish Regional Secretary, Transport & General Workers' Union. He had held that office since 1944.

We regret to record the death on August 13, at the age of 69, of Mr. Dudley Lemon, former Research Officer, Port of London Authority.

Mr. R. L. Weedon succeeds Mr. G. J. Dickin as Hon. General Secretary of the Institution of Railway Signal Engineers.

The Minister of Transport & Civil Aviation announces the following appointments:—

Mr. A. G. Curtis, Chairman of Traffic Commissioners, East Midlands Area, has been appointed the first Transport Commissioner for Wales & Monmouthshire.

Mr. I. Owen, Clerk to the Traffic Commissioners, South Wales Traffic Area, becomes Chairman of Traffic Commissioners & Licensing Authority.

Mr. C. R. Hodgson, the present Chairman of the Traffic Commissioners & Licensing Authority, South Wales Area, will assume the appointment relinquished by Mr. Curtis.

Mr. Alfred Gilmore who, as recorded in our May 30 issue, has been appointed Secretary of the Victorian Government Railways, joined the Department in 1911. He gained wide experience in the Rolling Stock Branch at various workshops and running sheds and as Personal Secretary to the Chief Mechanical Engineer. As a clerk on the staff of the first Electrical Running Inspector, he was concerned with the introduction of electric traction on the Victorian Railways. He transferred to the Secretary's Branch in 1933 as Personal Clerk to Mr. N. C. Harris, then a Commissioner. In 1935, Mr. Gilmore became assistant to Mr. R. G. Wishart, then Commissioners' Special Officer. In this position, and as Secretary of various departmental committees, he enlarged his knowledge of railway finance and general administration. In 1947 he was appointed Commissioners' Secretary. In this capacity he accompanied an official delegation to South Africa to investigate main-line electrification, as a prelude to the electrification of the Gippsland line. In 1950 he was appointed Commissioners' Special Officer, in which position he has been actively associated with the organisation and financing of the Department's £A80 million rehabilitation programme.

Mr. Arthur Shoemack, Indoor Assistant to the Commercial Officer, Paddington, Western Region, British Railways, has retired after 50 years of railway service.

Eng. Lorenzo J. Botazzi has been appointed Director of Railways, Argentine Transport Secretariat.

Mr. S. L. Visvanadhan, who, as recorded in our May 23 issue, has proceeded on retirement leave, was born in 1903. He headed the list of successful candidates at the competitive examination for recruitment to the Indian Railway Service of Engineers in 1927 and joined the North Western Railway as a probationer in 1928. He became Executive Engineer in 1941. During his tenure of office he was responsible for the re-alignment between Rohri and Panoakil, and Sukkur and Habibkot. In 1946, he became Superintendent of Works, Karachi-Quetta Survey. After partition he was posted to the South Indian Railway and, later, was appointed Deputy Engineer-in-Chief, Assam Rail Link Project, on which he served until completion of the project in 1950. He then joined the Railway Board as Railway Liaison Officer to expedite supplies to the railways by the Director-General of Supplies & Disposals. On re-grouping in 1952, he was posted to the Northern Railway as Deputy General Manager, Personnel. In March, 1954, he was appointed Chief Engineer of that railway, and in 1956, he was appointed Additional Member, Staff, Indian Railway Board.

Mr. S. L. Visvanadhan
Additional Member, Staff,
Indian Railway Board, 1956-58

Mr. Y. P. Kulkarni
Appointed Additional Member (Staff),
Indian Railway Board

Sir Francis Evans and Mr. L. W. Cole have been appointed Directors of Dewrance & Co. Ltd., a subsidiary of Babcock & Wilcox, Limited. They fill the vacancies on the board caused by the resignations of Admiral Sir Cecil Harcourt and Mr. H. McNeil.

We regret to record the death, on August 12, at the age of 50, of Mr. F. A. Langham, formerly Rotating Plant Sales Manager of Crompton Parkinson Limited.

Mr. Frank Marsden, Assistant Irish Traffic Superintendent, Euston, London Midland Region, British Railways, has been appointed Irish Traffic Officer, Euston.

Western Australian Government Railways, in connection with the administrative changes referred to editorially this week, announces the following appointments:—

Mr. Clem. Robinson fills the new position of Chief Finance & Executive Officer.

Mr. Joshua Bradley is appointed Chief Mechanical Engineer, in succession to Mr. T. Marsland, who, as recorded in our July 18 issue, has been appointed Commissioner.

Mr. O. W. Minshull has been appointed General Manager, Power Cables Division, British Insulated Callender's Cables Limited.

Mr. S. F. Smith, Sales Manager, Industrial Instruments Division, Firth Cleveland Instruments Limited, is making a business visit to Amsterdam this month. He will be accompanied by Mr. D. T. Broadbent, an Executive Director and Chief Engineer.

Mr. C. Payne has been appointed Secretary of Brookhurst Switchgear, Limited, one of the Metal Industries Group of Companies. He succeeds Mr. N. Clark who has been appointed Administrative Assistant to Mr. H. Owen Houchen, Chief Executive of the Brookhurst-Igranic Organisation.

Mr. Y. P. Kulkarni, who, as recorded in our May 23 issue, has been appointed an Additional Member (Staff) Railway Board, India, was born in 1906. He studied at the college of Engineering, Poona, and joined the former North Western Railway as an Assistant Executive Engineer in 1929. In 1948, he became Divisional Transportation Superintendent on the former Great Indian Peninsula Railway. He joined the Railway Board as Joint Director (Adjudication) in 1948, and was one of the Board's representatives on the Joint Advisory Committee on railway labour matters. He was later appointed Divisional Transportation Superintendent, and returned as Joint Director (Establishment), Railway Board in 1955. Mr. Kulkarni became Director (Establishment) some 15 months later. In this capacity, he was a member of the Indian Government delegation which visited the U.K., France, Belgium, Western Germany, Sweden, Yugoslavia and Switzerland to study workers' participation in management. Mr. Kulkarni has frequently attended meetings with the National Federation of Indian Railwaymen as the Railway Board's representative.

Mr. F. Hébert

Appointed Senior Deputy General Manager, French National Railways

Mr. Roger Guibert

Appointed Junior Deputy General Manager, French National Railways

Mr. O. J. Crompton

Appointed General Manager, British Insulated Callender's Construction Co. Ltd.

Mr. F. Hébert, Junior Deputy General Manager, French National Railways who, as recorded in our June 13 issue, has been appointed Senior Deputy General Manager was born at Isigny-sur-Mer (Calvados) in 1895. He enlisted in the army as a volunteer in 1914 and was eventually demobilised with the rank of Captain. He then studied at the Ecole Polytechnique and at the Ecole des Ponts et Chaussées, where he qualified as Ingénieur. In 1923 he went to Indo-China, where he served for seven years on the railways. Mr. Hébert returned to France in 1930 and joined the Réseau de l'Etat as Chef d'Arrondissement of the Permanent Way first at Paris, Montparnasse and then at Paris, St. Lazare. In 1932 he joined the Chief Mechanical Engineer's Department and in 1938 became Chief Mechanical Engineer, Western Region, S.N.C.F. In 1939 Mr. Hébert was attached to the Ministère de l'Armement, and, in 1940, he returned to the Headquarters Chief Mechanical Engineer's Department, of which he became Deputy Chief on January 1, 1941. He became General Manager, of the Northern Region in 1944, and of the Western Region in 1949. He was appointed Deputy General Manager of the S.N.C.F. on January 1, 1958. Mr. Hébert is an officer of the Legion of Honour and a holder of the Croix de Guerre and of the Medal of Freedom.

Dr. M. F. Jordan has joined Murex Welding Processes Limited, as leader of the Fundamental Research Section, Research Department. He succeeds Dr. W. D. Biggs who has taken an appointment in the Engineering Department of Cambridge University. Mr. H. J. Wellard has also joined the Fundamental Research Section.

Mr. I. S. Scott-Maxwell, Assistant General Manager (Engineering & Development), the Steel Company of Wales Limited, has resumed full-time duties after an extended period of illness. The appointments of Mr. J. H. Groocock as Chief Engineer, and Mr. H. D. Morgan as Chief Electrical Engineer have been confirmed.

Mr. Roger Guibert, Director, Région de L'Ouest, French National Railways, who, as recorded in our June 13 issue, has been appointed Junior Deputy General Manager, was born in Paris in 1907. Mr. Guibert was educated at the Ecole Polytechnique. He joined the Chemin de fer du Nord in January, 1935, and spent a large part of his career in the Commercial Department, where he dealt mainly with tariffs and traffic co-ordination. In July, 1954, he was appointed Deputy Director of the Commercial Department of the S.N.C.F., and on January 1, 1958, became Director of the Western Region, S.N.C.F. In addition, he was, from 1942 to 1954, General Manager of the Societe de Contrôle et d'Exploitation de Transports Auxiliaries, the road transport subsidiary of the S.N.C.F. He has published a great many articles, and read several papers, on transport subjects. He is the author of "Le Nouveau Statut des Transports Routiers," and "Service Public et Productivite." Mr. Guibert is a Chevalier of the Legion of Honour.

Mr. Stanley F. Steward, Chairman & Managing Director of Lancashire Dynamo Holdings Limited, has relinquished his appointment as Chairman in favour of Lt.-Colonel G. S. Marston. Mr. Steward remains Managing Director, but he will not seek to renew his service agreement when it expires next February. Mr. D. C. Lorkin has been appointed an additional Managing Director.

The London Midland Region of British Railways announces the following appointments:—

Mr. M. H. Matthews to be Assistant District Commercial Manager, Leicester.

Mr. T. Windle to be Assistant District Goods Manager (Sales), Bolton.

Mr. E. Maiden to be Assistant District Passenger Manager (Sales), Liverpool.

Mr. F. O. Dann to be Assistant District Operating Superintendent, Leicester.

Mr. J. M. A. Greig to be Assistant District Operating Superintendent, Birmingham (M).

Mr. L. B. Williams to be Recruiting Officer (Birmingham Area), Birmingham (New Street). L.M./W.R.

Mr. O. J. Crompton who, as recorded in our August 15 issue, has been appointed General Manager, British Insulated Callender's Construction Co. Ltd., joined British Insulated Cables Limited, as a Contract Engineer, in 1927. He went to India, in the same year, where he took charge of site work on the installation of overhead equipment on the Great Indian Peninsular Railway from Bombay to Poona and Igatpuri. He served in the United Kingdom on cable and overhead line contract work from 1931 to 1934, when he was appointed Engineer-in-Charge of a contract for the electrification of the Polish State Railways. In 1937 he returned to the United Kingdom to take charge of a contract for the electrification of the L.N.E.R. from Manchester to Sheffield and Wath. In 1940 he was appointed Deputy Contract Manager and, in 1942, Contract Manager. Following the formation of British Insulated Callender's Cables Limited, in 1945, he was appointed Manager, Civil Engineering (Traction). In 1949 he became Director & Manager, Traction Contracts, British Insulated Callender's Construction Co. Ltd., and in 1956 Joint General Manager. With co-author Mr. G. A. Wallace he was awarded the Llewellyn B. Atkinson Premium by the Institution of Electrical Engineers in 1953 for a paper "Economic aspects of overhead equipment for D.C. railway electrification" and was a member of the Supply Section Committee from 1955 to 1958.

Mr. Roy F. Belcher has been appointed Publicity Manager, Desoutter Brothers Limited; he succeeds Mr. Peter Allen, who has now left the company.

Mr. P. S. Beale has been appointed a director of the British Oxygen Co. Ltd. He was formerly Chief Cashier, Bank of England, and recently General Manager of the Industrial Credit & Investment Corporation, India, Limited.

Mr. F. E. Wilson has resigned his appointments within the C.V.A. Group, including his directorships of E. H. Jones (Machine Tools) Limited and C.V.A. Small Tools Limited. He is joining the Board of B. Elliott (Machinery) Limited.

NEW EQUIPMENT AND PROCESSES

Portable Insulation Tester

A PORTABLE insulation tester for production and laboratory testing has recently been introduced. Known as M.V.2, it is a "straight" a.c. flash testing unit of 800 VA. output with testing voltages of 500 to 3,000 V. available in 500-V. steps.

The voltages are selected by means of a tapping switch connected to the low voltage side of the transformer. An instantaneously-operated circuit breaker is provided which trips when the test piece breaks down. Input voltages from 200 to 250 V. in 5-V. steps can be accommodated by a voltage selector panel mounted at the back of the instrument.

Primary fuses and yellow and red indicator lamps are accessible from the front panel. The case has a silver grey hammered finish, and all metal parts are chromium plated. The instrument is particularly suitable for testing all types of lighting and power equipment used on railways, especially after alterations or repairs have been carried out on an installation or its components.

Two heavily insulated test prods with spring loaded retractable live points are mounted in clips on the case side. The live points are completely shrouded until brought into use by the operator. Connection is by silver-grey extra high tension cable. It is tested with leads at 11 kV. for one min. The weight unpacked is 37 lb. net and overall dimensions are 15 in. × 9½ in. × 13½ in. high.

Present delivery is two to four weeks but this will shortly be improved to ex stock. The price is £44 10s. net for single instruments. The M.V.2 tester is manufactured by Fraser, Speller Transformers Limited, Sydenham Road, Sydenham, London, S.E.26.

Metal Cutting Bandsaw

A METAL cutting bandsaw, designed to give faster and more efficient cutting-off times for all types of metals, will cut off square and with a minimum of variation in thickness; this saves material and reduces subsequent machining times.

There is continuous cutting operation of the blade and thus no wasted return stroke. The blade is 11 ft. 6 in. long by ¾ in. by 0·032 in. A hydraulic feed regulator is fitted with six-position regulator enabling the operator to select the correct feed for the particular material.

The hydraulic down feed gives a smooth even face to the cut which is of value when cutting thin sections and hollow tubes. A limit switch automatically knocks off the machine after completion of each cut. The saw has a capacity of 16 in. by 6 in. for rectangular sections, and of 10 in. for round bars.

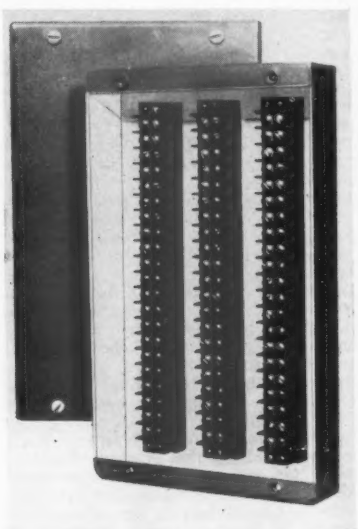
Four cutting speeds are available, 40, 71, 116 and 200 ft. per min. The drive motor is ¼-h.p. rating and runs at 1,420 r.p.m. The floor space required by the machine is 64 in. by 32 in., and it stands 42 in. high. Average cutting times include: m.s. bar 1 in. dia., ½ min.; 7 in. dia., 20 min.; L.64 aluminium bar 3¾ in. dia., 1½ min.; S.96, 55-ton 2½ per cent nickel steel, 2¾ in. dia., 2½ min.

Further details may be obtained from the manufacturer, Barnaby Engineering Co. (1950) Ltd., Bourne Road, Bexley, Kent.

Telephone Junction Distribution Boxes

STEEL-CASED, damp-proof telephone junction distribution boxes of robust construction are suitable for use in railway telephone systems. Two basic design ranges have the most likely applications to railways; these are the Rodwell "A" and "B" series.

The "A" series is available with three types of cases for five pairs up to 500 pairs of cables. The robust steel welded damp-proof cases are zinc plated, and the boxes are suitable for indoor or outdoor



situations; 15 types of boxes are available with or without jumpering.

Terminals have a solder tag at one end for wires of incoming cables and a screw terminal at the other to facilitate jumpering if required. White designation plates are provided for numbering the terminals, which are mounted in multiples of ten. Jumper rings are fitted when such a facility is required.

The case is sprayed externally in grey and internally in white. It can be supplied in three styles:—with heavy duty piano-type hinge and quick-fix screw; flanged edge with four or more screws, securing cover; or with overlap edge (for sunk fitting) with four or more screws. All boxes are rubber (gasket) sealed.

The "B" series is designed on similar lines to the "A" series, described above, but is available for 10 up to 240 pairs of

cables. The main feature is its suitability for use in locations where soldering is impracticable or undesirable. Terminals have a screw at each end and boxes can be supplied giving jumpering and non-jumpering facilities. The accompanying illustration shows this series.

Further details may be obtained from the manufacturer, G. C. Rodwell Limited, 232, Lavender Hill, Enfield, Middx.

Loudspeaking Intercommunication Equipment

EQUIPMENT affording immediate loudspeaker contact between two or more positions over any distance using G.P.O. and/or private land lines can be used between buildings, stations, workshops, and other railway installations, as opposed to internal communication only within a building.

The system is a logical development from office-to-office loudspeaking and is of particular advantage to those subscribers who make a large number of such calls daily. Subscribers with private G.P.O. lines already will be able to replace the telephones by loudspeakers, and save time by by-passing the telephone operator.

The equipment has been approved by the Post Office for connection to its lines, but the installation would be completely independent of the normal telephone switchboard. The system is secret and a conversation between two units cannot be overheard from a third.

The installations operate from 200-250-V. a.c. mains; the power consumption is low. The manufacturer both supplies and installs the equipment, and will undertake a regular maintenance agreement.

Identical amplifiers are used in the master unit and in the extension units, so that servicing is simplified. The units can be supplied in black or cream cases, with cream, red or grey grills. The accompanying illustration shows the appearance of the master unit (left) and the extension unit.

Typical prices of the equipment are: master unit £36, extension unit £22, and power supply unit £14. Inquiries regarding the above equipment should be made to the manufacturer, Siemens Edison Swan Limited, 155, Charing Cross Road, London, W.C.2.

Multi-Point Temperature Recorder

A MULTI-POINT thermocouple temperature recorder, which provides a permanent printed record of the temperature being measured from any one of up to 500 points, the time at which it was taken and the channel identification, is now in production. Also, by employing an alternative extension box, with resistance strain gauges instead of thermocouples, the equipment can be used as a multi-point static strain recorder.

The recorder consists, basically, of two units: one contains a precision voltage supply for the thermocouples, and the printing head, motor-driven slidewire and servo equipment; the other unit is an extension box housing 50 thermocouple connections, selector switching and provision for a "cold junction oven." Additional extension boxes can be added as required to give up to 500 points.

The maximum temperature range with which the equipment can deal is some 800° C.—1,000° C., depending on the type of thermocouple used.

The measurements are recorded on a 3-in. wide strip chart, capable of accommodating a total of 3,000 readings in a 50-ft. length. The maximum rate of printing is approximately 100 measurements per min., each measurement comprising the three variables—time, temperature and channel.

The recorder is manufactured by Savage & Parsons Limited, Watford By-Pass, Watford, Herts.

Track Tamping Machine

A TRACK tamping machine equipped with optional hydraulic lifting jacks has been developed in the U.S.A. Known as the Track Maintainer, this machine is stated to be the only unit of its type that provides maximum ballast compaction uniformly under each sleeper and concentrated directly under the rail.

The machine incorporates a powerful, high-frequency vibratory motor, which imparts vibratory energy to ballast particles under the railroad sleeper, making it possible, with the same machine, to make lifts from zero to any practical height limits.

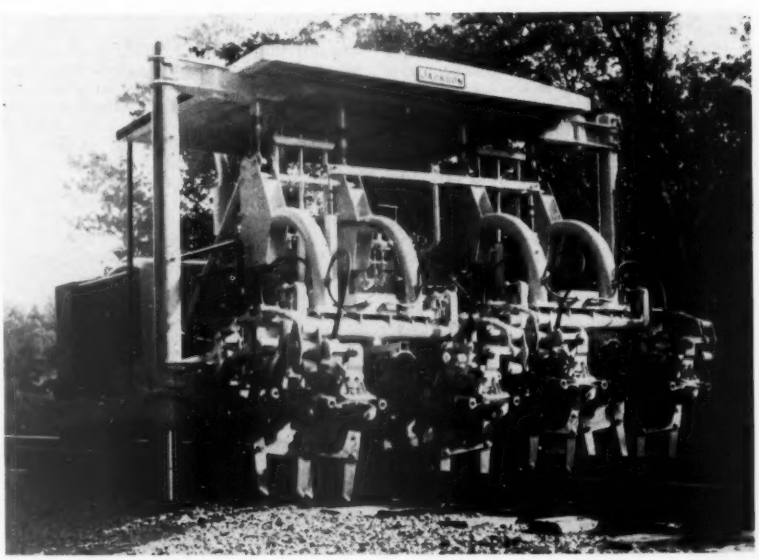
It is now equipped with an optional spot tamping jack assembly, shown in the attached photograph. This device, controlled by the operator, obviates the use of hand jacks, thus reducing labour and extra equipment, with resultant economy and increased output.

The spot tamping jack assembly consists of a heavy-duty "strong-back" transverse frame member attached to the front chassis section which supports two 25-ton capacity hydraulic lifting rams by means of sturdy hinge-type mountings. These permit quick and positive swing and lock to travelling and jacking positions.

Two rail clamps, engaging the head of the rail, project from the transverse member and are hydraulically actuated. They are operative independently and are interconnected with a ram system to automatically clamp the rail lifted. Power for jack assembly operation is provided by a pump operating at 2,000 lb. per sq. in.

Multiple section valves control each side of the jack assembly as well as tamping operations of the machine. A levelling device with suitable adjustments is provided for the operator.

Further details of the tamping machine, manufactured by Jackson Vibrators Incorporated, of Ludington, Michigan, U.S.A., may be obtained from Electric Tamper Export Company, Engineering Building, 205, West Wacker Drive, Chicago 6, Illinois.



Ministry of Transport Accident Report

Little London Level Crossing, November 6, 1957; British Railways, Eastern Region

Colonel W. P. Reed, Inspecting Officer of Railways, Ministry of Transport & Civil Aviation, inquired into the accident which occurred at about 6.46 p.m. on November 6, 1957, at the public level crossing at Little London, near Stallingborough, on the line between Grimsby and Barnetby. The 6.25 p.m. fish train, New Clee to Leicester, had just passed when the 5.17 p.m. four-coach diesel train, Lincoln Central to Cleethorpes collided with a motor cycle for which the gateman, who had assumed this train also to have cleared the crossing, had begun to open the gates. Its driver was killed and the gateman suffered a broken arm.

The moon was full, though not very high, in a clear sky and visibility fairly good but for a little ground mist; there was a hard frost.

Features of Crossing

The road from Grimsby to Immingham crosses the railway at an angle. There are distant signals in each direction operated from a ground frame. There are right-hand hinged gates with targets and swivel lamps and uncontrolled wickets. The sleeper constructed road over the line is only 17½ ft. wide and the effect is to give pactically a single line of road traffic which increases the difficulties of working. Seldom do two vehicles endeavour to pass each other on the crossing, which is manned continuously in 8-hr. shifts. The gatemen are kept informed of the rail traffic position by 3-position block indicators and a repeating block belt. View along the road from their cabin is reasonably good in both directions and in all directions from the crossing itself is excellent. The block indicators become restored to normal from "train on the line" when the train concerned actuates a treadle at the crossing, in addition to the usual block controls themselves. There is omnibus circuit telephone communication with neighbouring signal boxes. No defect was found to exist in any of the equipment.

Working Conditions

There are about 150 trains daily, with 1,200 to 1,300 motor vehicles, a good proportion being buses, lorries, and tankers. In the busy 4 to 6 p.m. period about eight trains and 120 vehicles and motor cycles pass in an hour, while in the morning and early afternoon traffic is only slightly less. Cycle traffic is light, however, and the number of pedestrians negligible. The crossing is not exempt from the statutory requirement that the gates are to be normally across the road and the instructions say that the crossing keeper must not open them unless both block indicators are normal "unless he is satisfied that it is safe to do so." In practice, however, the gates are kept normally open to the road; the flow of traffic makes it impracticable to do otherwise and application is to be made to secure the required exemption.

The gatemen have to use much discretion in interpreting their instructions to prevent the road from being closed longer than necessary. The adjacent signalmen must obtain "line clear" sufficiently early to clear their signals in time for a train, but if the gatemen closed the crossing when their indicators showed "line clear" congestion would arise at busy periods. They therefore keep a careful check on scheduled passing times, maintained in their cabin, check them with the bell codes and close the gates to the road as late as they consider it safe, having regard to the type of train and its direction. A number of down trains, for instance stop at Stallingborough station and certain other local conditions influence the course the gatemen feel it essential to take for any particular train. The switching out of a signalbox at night necessarily affects the position appreciably.

It is difficult to close the gates promptly if a press of road traffic coincides with the warning of the approach of a train. Movement of vehicles may hinder the gateman from reaching the point for working the gates and this movement may itself be prolonged by the single line effect above referred to. While by no means frequent or severe in themselves these difficulties occasionally coincide to give the gateman a little anxiety and his task is not a simple leisurely one requiring no initiative.

Colonel Reed paid a 3-hr. visit on a wet gusty evening in the busy period; he noticed that vehicles seldom tried to pass each other and that a bus and small car which did touched. The gates were closed 11 times for 14 trains during a 2-hr. period for which records were kept; total closed time of the gates was 33 min. The longest period was 7¼ min. and there were then three motor vehicles waiting on one side with eight, plus two motor cycles, on the other, just able to cross in one direction at a time in the less than two minutes before the gates had to be closed for another train. The man on duty was elderly but active and a retired signalman; it was apparent to Colonel Reed that he used his past experience as a signalman to the full in working the gates.

Course of Events and Evidence

The diesel train must have reached the crossing not more than 1 min. after the fish train passed. Its driver said he was approaching at 55 to 60 m.p.h. and had a clear indication at the crossing distant signal; he remembered passing the fish train after the signal and noticed no smoke from it. Certainly his view ahead was not obscured. Close to the crossing he saw the gate partly open and someone at it, but not the red lamp. (This does not face along the line unless the gate is fully closed to it.) Stopping in about ¼ mile he found part of the gate on the buffers projecting over the other, or down, line and his vacuum hose pipe torn off. Later, after disconnecting the brake in the leading coach, he drove the train from the third one to destination. He arranged with his guard to protect the down line but in fact placed detonators only a few yards off. Fortunately nothing was approaching. A message from the gate lodge to Stallingborough resulted in the line being blocked in both directions.

The guard going back to the crossing found the body of the motor cyclist 40 yd. from it with cycle close by.

The stationmaster at Healing, the next station beyond Stallingborough, reached the crossing at 7.5 p.m. and noted the up line indicator to be at "train on line." He dealt very efficiently with all the consequences of the accident.

The crossing keeper had served for 20 years there. He said he heard the offering bell signal for the fish train and shortly after that for the diesel; he saw both indicators at "line clear." A fair amount of road traffic was passing; he went out to close the gates on hearing "entering section" for the fish train. This was at 6.43. His impression was that as he left the cabin he heard the same signal for the diesel train but did not remember looking at the indicators. Closing the gates he returned to the cabin, raked ashes from his stove and put on coal, heard the motor cycle arrive and saw and heard the fish train pass. He was under the impression the diesel had done so too because "as a rule if two trains are signalled close together and they are of the same class the up train passes me before the down as there is a slight rising gradient on the down road. . . ." He was not sure, he said, but he thought the up indicator was normal and therefore he replaced his distant signals and was pushing the gates open when something hit them. He did not see anything coming on the up line.

Although he remembered seeing the tail lamp of the fish train he could not account for failing to see the much brighter head lamp and destination panel of the diesel train. From what he said he should have been facing more or less towards it; smoke might have obscured the view though he noticed none. He said the block indicators were not entirely reliable, because if a block commutator was turned to "train on line" without first being put to "line clear" the relevant indicator in his cabin would remain at "line blocked," but he could not give a specific date when such had occurred. The restoring treadle did not always return the indicator to normal, especially when lightweight trains were travelling slowly. He did not directly suggest that either of these wrong indications occurred; he had already stated that he had seen the indicator at "train on line" for the diesel train before going to the gates. He implied, however, that their possibility undermined reliance on the indicator.

The first kind of wrong indication is a "danger side" one, possible with this type of restoring treadle, owing to the stick relay circuit used, if the block commutator is not used correctly. (This has no effect however on the indicators in the signal-boxes themselves.) Both the signalmen concerned in this case were positive they had operated the block correctly. The man controlling the entry of the diesel train into the section said they realised at his box the importance of prompt messages to the safe working of the crossing, and the men doing duty at the box in advance confirmed this attitude as far as he and his colleagues were concerned.

The second type of failure is not dangerous. Four such had occurred on the down line in the past year and none on the up.

Conclusions

Colonel Reed is satisfied that the up distant signal was not returned to caution until the diesel train had passed it. Its driver was in no way responsible for the accident, but he failed to protect the down line properly. The crossing keeper opened the gates hastily without making sure it was safe. He implied that he might have been misled by a faulty block indicator, but evidence is strong that no failure occurred. He could have seen the diesel train approaching if he had been paying proper attention and had looked along the line.

That smoke from the other train obscured visibility is not tenable in view of the evidence of the diesel train driver and the gateman himself. More likely the latter, having made up his mind that that train had passed, was watching the motor cyclist while pushing the gate.

His further suggestion that the indicators were not entirely reliable provides no excuse for ignoring them. If he considered them faulty he should—in addition to checking their movements carefully—have been all the more scrupulous in making sure that trains in section had passed. He should certainly have postponed attending to the stove which precluded him looking out for trains, until an interval when he knew no train was in section. Blame must rest solely on him.

Remarks and Recommendations

Like the other men, this one was accustomed to using his judgment in working the gates so as to avoid undue road traffic delays and relied to a considerable extent on his knowledge of rail traffic. He may well have become momentarily careless through over confidence in that, but whatever the reason for his mistake this accident shows that constant vigilance at a manually operated gate is vital.

The type of signal protection at this crossing generally would prevent an accident arising through a keeper's mistake, and had it been more comprehensive, with home signals in addition, probably the accident would have been prevented in spite of the critical timing of events. The driver would have seen the home signal go to danger and whistled and braked a few vital seconds earlier. Home signals usually are provided at busy crossings normally open to the road and will be required here before the exemption, being applied for, can be given to legalise the existing method of working. The instructions in force are out of date, but this did not contribute to the accident and they are being amended to cover the working for which approval is sought.

It should be possible to re-align the gates when closed to the road so as to give greater effective road width without lengthening them. This is being examined as an early means of improving road conditions and quicker dispersal of road vehicles.

The "danger side" wrong indication mentioned is obviously undesirable and should be prevented. The need for treadles is questionable; they may be useful in long block sections but can be of little practical use here where they are short and rail and road traffic sufficient to keep the gateman fully occupied and alert. Colonel Reed thinks the men here would not find their duties more difficult were the treadles removed. The three crossings where they are found are being examined by the Region and either the treadles will be removed or the arrangements be altered to make a "danger side" indication impossible.

The automatic half-barrier system, authorised by the Act of 1957, might be considered for this crossing. It would appear suitable as the view from the railway and along the road is good, train speeds limited to 60 m.p.h. and a high proportion of trains approach at a reasonable speed. There is very little pedestrian or cycle traffic while rail and road traffic is of appropriate density, though a little greater than that suggested in the Report on Level Crossing Protection published in 1957. Colonel Reed therefore recommends that consideration be given to installing such equipment.

Whitland Station, Western Region, Rebuilt

First stage of redevelopment plan for railway facilities serving area

The British Railways, Western Region, station at Whitland, 13 miles from Carmarthen on the main line between Fishguard and Paddington, has been rebuilt. Besides serving an important dairy-farming area the station forms a local centre of railway working by linking railways from the North and South shores of Milford Haven and from Cardigan.

A redevelopment plan for the railway installation at Whitland was produced several years ago and the rebuilding of the passenger station has been the first work to receive attention.

The new buildings are half as big again as those they replace and canopies now cover both platforms for more than half of their length. Passengers enter the booking hall under cover from the drive-in and have immediate access to the ticket windows.

The waiting room, in which refreshments are available, can be entered before passing through to the eastbound platform. Refreshments can also be obtained on the platform. The ladies' waiting room, lavatories, and Stationmaster's office are on the platform side. This main building also contains the parcels office, which has direct vehicle access from the forecourt.

A separate building to the east houses the District Inspector's office and stores. Widening of the narrow westbound platform could not be undertaken at this stage, but a corridor waiting room with refreshment facilities, and new toilets, have been built. Seats on the platform are sheltered by glazed screens. The building system was designed to meet the requirements of rapid and economical construction.

Construction

Ground conditions necessitated the use of piling below the floors of the larger buildings, but while this was proceeding the timber wall panels were being prefabricated in Swansea. Above floor level, dry construction methods were used wherever possible to speed the sequence of work, and much of the accommodation was available for use two weeks ahead of schedule. The smaller buildings are entirely of natural timber framing, but on those fronting the road the timber has been combined with grey brick walls. The decoration of the public rooms relies on the permanent colours of tiling, plastic, and stainless steel; and synchronous clocks, central heating, and hot water supply have been installed. Long-span castellated beams have been used in the steel and aluminium canopies so that the platforms are left unobstructed. Fluorescent lighting fittings display the place name.

The project was designed and supervised by Mr. H. E. B. Cavanagh, Regional Architect, under the direction of Mr. M. G. R. Smith, Chief Civil Engineer, British Railways, Western Region. Bennett Bros. Ltd., of Swansea, were the general contractors.

Rebuilt station at Whitland, Western Region, showing timber and brick construction

Swiss Federal Railways in 1957

Intense economic activity in Switzerland in 1957 has been reflected in the working results of the Swiss Federal Railways. The number of passenger journeys last year at 219,300,000 exceeded by 3·2 per cent the 1947 record of 213,000,000 and passenger receipts, at 342,400,000 francs were 4·8 per cent higher than in 1956, another record. Goods traffic, too, rose to unprecedented levels, but the increase was limited to the first nine months of the year under review while a decline set in in the December quarter. Despite this, goods traffic for the whole of the year totalled 26,000,000 *tonnes*, 3 per cent more than in 1956; this also was a record. Goods receipts in 1957 were 517,600,000 francs, 6.4 per cent more than in 1956.

Total traffic receipts amounted to 936,400,000 francs, an increase of 5½ per cent over the previous year; but this increase was almost entirely absorbed by greater working expenses, which were 3·2 per cent higher. The working surplus for 1957 amounted to 76,200,000 francs.

In contrast, the present trends traffic are reported to cause grave concern as to the results for the current year. Goods traffic began to decline in the last quarter of 1957. Added to this is a continuous rise in the working expenditure, more particularly in salaries and wages, and, as

a further item contributing towards higher working costs, the demand for shorter working hours. The fear has been expressed officially that the effect of these and other factors will result in a deficit by the end of 1958. To counteract these adverse tendencies an increase in fares and rates is being envisaged. The S.F.R. would thus abandon the policy hitherto pursued, of refraining from any increase in tariffs with a view to combating road competition.

Further economies are to be secured in the administration. In addition, a certain simplification of working and service methods is also envisaged with a view to reducing costs. Cantonal and municipal authorities have been asked to refrain as far as possible from demanding new lines or new services.

Bus Service Reductions

London Transport has issued a new poster which is being displayed from this week in connection with reductions in bus services on a number of routes. The text of the poster is as follows:—

"On some routes the demand for buses is steady or rising, on others it is falling. It is the constant task of London Transport to gauge, as accurately as possible, its passengers' requirements and, with a practised eye on the whole pattern of London's needs, to provide for them.

The present reductions in service on a number of routes, and the withdrawal of service on a few, have been planned to meet the falling demand where fewer people are using the buses. The money saved by these reductions in bus mileage —and it is considerable—will enable London Transport to continue to offer full service where it is most needed.

London's red buses serve 3,900 miles of route. During the rush hours 5,400 buses and 1,400 trolleybuses are on the road—the largest urban bus system in the world."

Questions in Parliament

Scottish Diesel Services

Mr. Neil McLean (Inverness-shire—U.) asked the Minister of Transport & Civil Aviation on July 30 when it was expected that the proposed diesel-electric passenger service, under the capital development programme approved by him, between Aviemore, Rothes, and Elgin, would come into operation.

Mr. Harold Watkinson, in a written reply: While I approve the general lines of the Commission's capital development programme, it is for the Commission to put it into effect, and I have therefore asked the Chairman of the Commission to let my hon. friend know the position as regards this particular service.

B.T.C. Boards of Management

Mr. Ernest Davies (Enfield E.—Lab.) asked the Minister of Transport & Civil Aviation on July 30 for a general direction to the B.T.C. to include among the members of the boards of management, which had in effect replaced the Executives provided for under the Transport Act, 1947, those with experience in the organisation of workers.

Mr. Harold Watkinson: No. The appointment of members to boards throughout its undertaking is the responsibility of the Commission. It is clear from the appointments it has made in recent years that it fully appreciates the value of a trade union background, among other forms of experience. For example, each of the Area Boards of British Railways includes one member with this qualification.

Mr. Davies: There is a danger of nullifying the provisions of the 1947 Act for the appointment of persons with executive experience of organising workers. Can the Minister state whether there is a representative of the trade unions on the management board of B.R.S. in view of the fact that Mr. Harold Clay is no longer a part-time member?

Mr. Watkinson: The Commission is charged with the task of finding the best people to manage these undertakings. That means that it will find some candidate from the trade union movement as from elsewhere. We had better leave it to the Commission to pick the best.

Parliamentary Notes

Connections with London Airport

The Minister of Transport & Civil Aviation, Mr. Harold Watkinson, stated on July 30 in reply to Mr. F. Beswick (Uxbridge—Lab.) that he awaited detailed proposals from the promoters of monorail and other systems and would then compare these with the scheme for a conventional railway link between London and London Airport.

Mr. Beswick: The real solution is a rail link. Are we to understand that this is still under consideration?

Mr. Watkinson: I am not prepared to accept that statement. A monorail may be a better and rather more modern way of doing it. As soon as I get the report on that, which I expect shortly, I shall come to a conclusion.

Mr. R. Gresham Cooke (Twickenham—C.) asked whether the Minister could say what would be the cost either of a rail link or monorail.

Mr. Watkinson: No. That is what I am waiting for.

Unpunctual Mail Trains

Mr. G. M. Thomson (Dundee E.—Lab.) on July 30 complained of late deliveries in Dundee of mail arriving by overnight train from London.

Mr. K. P. Thompson (Assistant Postmaster General) said that the night train had been too late at Dundee 19 times out of 25, and on three Saturdays out of four, in July, for letters to be delivered in the first delivery." "One of the troubles," he added, "is that Dundee is a long way from London, and there is some difficulty sometimes because trains are late . . . We are having discussions with the B.T.C. to try and improve this record, and we will do our best."

FORMATION OF BROCKHOUSE/ALLEN JOINT COMPANY IN RHODESIA AND NYASALAND.—The formation of a joint company to be known as Brockhouse, Allen Limited in the Federation of Rhodesia & Nyasaland has been announced by the two parent companies J. Brockhouse & Co. Ltd. and W. G. Allen & Sons (Tipton) Ltd. The company will operate from factories acquired from J. Brockhouse (Rhodesia) Limited in Ndola and Luanshya, and produce engineering products for the mining and transport industries. The company will be capitalised at £200,000, of which J. Brockhouse will hold 60 per cent and W. G. Allen 40 per cent.

Staff and Labour Matters

London Busmen

A meeting of the Central Busmen's Committee took place last weekend, from which resulted a campaign of non co-operation with London Transport regarding the cuts in service now being put in effect. Details of this campaign were sent on Monday to garages and include advice to busmen to insist on full meal breaks, enforcement of rules about the number of standing passengers, refusal to make up lost running time caused by traffic congestion, refusal to be turned short of scheduled runs (sometimes done to cover up for timetable delays), keep strictly to departure times, and refusal to be transferred to other duties.

These recommendations were considered by a delegate meeting of central London busmen on August 20, the day on which the first cuts began.

It is understood that, on Monday, August 18, the Secretary of the Central Bus Section instructed London Transport branches not to operate the non co-operation decision.

C.S. & E.U. Annual Conference

After a lengthy debate of the annual conference of the Confederation of Shipbuilding & Engineering Unions last week on the question of protecting workers against redundancy, the following statement was issued as a declaration of policy:—

"The Confederation reaffirms its beliefs in the maintenance of full employment and is resolved to do all in its power to see that its members are provided with security of employment.

"We believe that full employment can only again be achieved and maintained by the return of a Labour Government and we urge all our members to make every effort to attain that objective.

"In present circumstances we pledge ourselves to do all possible to secure retention in employment of all our members.

"If, in spite of all efforts, some redundancy is unavoidable, this annual meeting urges the executive council, district committees, shop stewards and members to take every practical step to make the best possible arrangements to ensure that the minimum of hardship is experienced by our members."

RAILWAYS CUT BY FLOODS IN AUSTRIA.—Floods in the Mur valley in Austria last week cut the main line in several places between Vienna and Styria, Carinthia, and Italy. Several passenger trains were halted only just in time before they could run into deep water, mud, or wreckage.

BRITISH STANDARD FOR GEARS FOR TURBINES AND SIMILAR DRIVES.—British Standard, B.S.1807, Part 2:1958, specifies tooth forms based on 20 deg. and 16 deg. pressure angle basic rack profiles and those produced by a hob of 16 deg. flank angle in the axial plane. A table relating to 20 deg. and 16 deg. pressure angle basic rack tooth profiles lists normal diametral pitch, normal pitch and module; a second table lists pitches in terms of the axial pitch of the hob. Part I of this British Standard was published in 1952 and dealt with Accuracy. Copies of this Standard may be obtained from the British Standards Institution, Sales Branch, 2, Park Street, London, W.1. The price is 4s.

Contracts and Tenders

London Transport £10,000,000 contract for Underground stock

The London Transport Executive has placed contracts to the value of £10,120,000 for 76 seven-car trains for the Piccadilly line. The main contractor is the Metropolitan-Cammell Carriage & Wagon Co. Ltd. Traction motors will be supplied by the General Electric Co. Ltd., control equipment by British Thomson-Houston Co. Ltd., and rubber suspension by Metalastik Limited. Contracts for the ancillary equipment have been placed as follow: brake equipment, Westinghouse Brake & Signal Co. Ltd.; motor generators, Metropolitan-Vickers Electrical Co. Ltd.; door equipment, G. D. Peters & Co. Ltd.; automatic couplers and disconnecting units, Associated Equipment Co. Ltd.; roller bearing axleboxes and suspension bearings, Hoffmann Manufacturing Co. Ltd.; loudaphones, Clifford & Snell Limited; batteries, Peto & Radford Limited; auxiliary electrical equipment, Patent Lighting Co. Ltd.; lighting and auxiliary equipment, Benjamin Electric Limited.

Pirelli-General Cable Works Limited, an associate of The General Electric Co. Ltd., has received a contract from British Railways, Southern Region, for the manufacture and supervision of installation of the bulk of the high-voltage and associated cables for the second phase in stage 1 of the electrification extensions to the Kent Coast. Some 140 miles of three-core, 0·1-sq. in., 33-kV. oil-filled cable and approximately 140 miles of pilot/supervisory cable are involved in the contract. For part of the route, corrugated aluminium sheathing will be employed for the feeder and pilot/supervisory cables. Manufacture will begin immediately and installation is due for completion by mid-September, 1961.

London Transport has placed a contract with Rashleigh, Phipps & Co. Ltd. for alterations to the electrical installation at Golders Green Underground Depot. The value of the contract is approximately £22,500 and the work should be completed in 26 weeks.

British Railways, North Eastern Region, has placed the following contracts.

Matterson Limited, Rochdale: one 7½-ton hoist, York North Motive Power Depot

Wellerman Bros. Ltd., Sheffield: construction of two strengthening ribs to Arch No. 7, Bothal Viaduct, Bridge No. 74

W. T. Glover & Co. Ltd., Manchester: medium voltage cable, Huddersfield resignalling.

British Railways, Southern Region, has placed the following contracts.

The Walter Kidde Co. Ltd., Northolt, Middx: automatic fire protection, Swanley Junction signalbox

Davis, Watsons & Elliotts Limited, Aldershot, Hants: resurfacing of road, Petersfield

Constructors Limited, Birmingham 24: steel partitions and layout of offices, London Bridge

Demolition & Construction Co. Ltd., London, S.W.1: new staff accommodation, Sheerness-on-Sea

Aubrey Watson Limited, Henley-on-Thames, Oxon: alterations and decorations, Cannon Street, Dowgate Hill House, and 61, Queen Street

The Demolition & Construction Co. Ltd., London, S.W.1: reconstruction, Newhaven Harbour "A" Shed

Maurice Hill Limited, London, E.C.3: recladding of roof, Feltham Locomotive Shed.

The Director General, India Store Department, Government Building, Bromyard Avenue, Acton, London, W.3, invites tenders for the supply of superheater elements for W.G. locos. See Official Notices on page 232.

The Special Register Information Service, Export Services Branch, Board of Trade, reports that the closing date of the call for tenders from South Africa for steam pressure gauges, recorded on page 173 of our August 8 issue, has been postponed until September 12, and the tender No. amended to K.7406.

The special Register Information Service, Export Services Branch, Board of Trade, reports that the closing date of the call for tenders from South Africa for automatic couplers and spares, reported on page 173 of our August 8 issue, has been postponed to September 5, 1958.

Notes and News

First British Railways Railbus in Scotland.—The first British Railways railbus entered Scotland on August 8. The accompanying illustration shows Mr. James Ness, General Manager of the Scottish Region, at the Border sign at Gretna, with other officers of the Region: (left to right): Messrs. C. Ross Campbell, Motive Power Superintendent; C. W. Stewart, Assistant General Manager; James Ness; and M. G. Maycock, Chief Civil Engineer. The vehicle was built by A.C. Cars Limited, of Thames Ditton, and was the first of the 22 experimental railbuses ordered for British Railways to be delivered. A description of the vehicle appeared in our February 22 issue. Modifications since carried out include the provision of power-operated steps, at the request of the Scottish Region; these can be seen in the illustration.

Mr. James Ness and officers of the Scottish Region at the Border sign at Gretna on arrival of the first railbus to enter Scotland

Glasgow Trams to be Withdrawn.—The Glasgow Corporation plans to withdraw all trams by 1963; the urban transport services will be provided by buses, trolleybuses, and the 6½-mile Underground line of Glasgow Municipal Transport. Meanwhile, good progress is being made with electrification of Glasgow suburban lines of British Railways, Scottish Region.

Armstrong Patents Co. Ltd.—The address of the Armstrong Patents Co. Ltd. was given incorrectly, as the result of a printer's error, as Eastcote, Beverley, Yorkshire, in certain copies, in the advertisement on page 57 of our July 25 issue. The correct address is Eastgate, Beverley, Yorkshire, as shown in the same advertisement published on page 36 of this issue.

Rail Facilities for Edinburgh Festival.—During the period of the International Festival of Music & Drama in Edinburgh, British Railways, Scottish Region, will provide cheap day and excursion ticket facilities to Edinburgh from many places and there will be special late return trains from Edinburgh to certain stations. Besides the regular service of inter-city diesel trains between Glasgow and Edinburgh, a special late train will leave Edinburgh Waverley at 11.25 p.m. each week-day from August 25 until September 13 for principal stations to Glasgow Queen Street. From Edinburgh there will be a wide choice of excursions, including Newcastle, Aberdeen, Callander, Glasgow and the Clyde Coast, and circular tours on weekdays to the Trossachs and to Loch Tay. For seven days of unlimited travel between all stations in the Scottish Region and on the Clyde Coast and Loch Lomond sailings of the Caledonian Steam Packet Company "Freedom of Scotland" tickets are obtainable, with concession rates for families travelling together. Special runabout tickets will be issued for five-day periods, also seven-day holiday runabout tickets. Former Caledonian Railway

"single" locomotive No. 123, hauling two former C.R. coaches, is to make a special excursion run on August 30 from Edinburgh Princes Street to Carlisle.

Hackbridge & Hewittic Co. Ltd. Results.—Mr. Anthony M. Browne, Chairman and Managing Director, Hackbridge & Hewittic Co. Ltd., in his circulated statement, reports a group trading profit for the year ended March 31, 1958, of £480,863 against £434,690 for the previous year. The improvement in the company's results, he states, stems directly from the steps taken during the past few years in improving the manufacturing facilities in the factory. The net profit was £164,816 against £153,499, and a final dividend of 15 per cent has been recommended, making 20 per cent for the year.

Study of Transport Subjects.—Classes are to be held in the City of London College, E.C.2, during the session starting on September 22. They will be available to prepare candidates for the Graduateship and Associate Membership examinations of the Institute of Transport; but other students interested in the subject, but who do not wish to take the examinations, will be welcomed. Lectures will be given weekly. Enrolment may be made on September 15 (last session's students only), 16, and 17. Details may be obtained from the Secretary, the City of London College, Moorgate, E.C.2; tel. Monarch 8112-3-4.

Beyer Peacock Share Exchange Deals.—Beyer, Peacock & Co. Ltd. has agreed to acquire the £100,000 ordinary capital of Air Control Installations Limited (£50,000 each in "A" and "B" shares), and the £1,000 capital of B. J. N. Engineering Limited on a share exchange basis. Air Control will receive £200,000 in ordinary shares and for B.J.N. Engineering consideration is £31,250 ordinary shares. Based on a closing price on Monday of 7s. 10½d. for the 5s. units the offers are worth over £364,000. Negotiations are also in progress for the acquisition of the 100,000 6 per cent redeemable cumulative preference shares of £1 of Air Control in exchange for 6 per cent unsecured loan notes of Beyer Peacock. Net current assets of Air Control at October 31, 1957, totalled £111,680, and net assets, excluding goodwill and after £17,850 future tax, amounted to £337,749.

English Electric Maintains Dividend.—The English Electric Co. Ltd. is maintaining its interim at 4 per cent for the year ending December 27, 1958. The 1957 final was 10 per cent making 14 per cent on the £18,266,065 ordinary capital.

Jugoslav Request to U.S.A. for Credits.—Purchase of rolling stock for the State Railways is one of the objects of the credits worth over $300 million for which the Jugoslav Government is reported to have asked the Government of the U.S.A. earlier this week; another object is stated to have construction of a power station, but railway electrification does not appear to be envisaged.

N.E. Region Stations to be Closed.—British Railways, North Eastern Region, has announced that from September 15 the following stations on the East Coast main line are to be closed: (between Doncaster and York) Balne, Heck, and Riccall; and (between York and Northallerton) Beningbrough and Sessay. The goods stations at Riccall and Beningbrough will be converted to public delivery sidings, but there will be no alterations in the present method of dealing with freight traffic at Balne, Heck, and Sessay. Parcels traffic will be collected and delivered by British Railways road vehicles operating from Goole for Balne and Heck, from Thirsk for Sessay, and from Selby and York for Riccall and Beningbrough.

Wellman Smith Owen Increased Dividend.—An increase in group net manufacturing and trading profits from £285,173 to £396,395, and a rise of 2½ per cent in the dividend, announced by the Wellman Smith Owen Engineering Corporation Limited for the year ended March 31, 1958. A final dividend of 15 per cent (12½ per cent) is recommended, making 25 per cent (22½). Taxation charged amounted to £458,616 (£306,351). Profits attributable to the holding company totalled £396,314, compared with £284,785 previously. The general reserve is allocated £200,000 (£100,000) and the supplementary staff pensions fund £30,000 (£50,000).

Preston Brook and Winsford & Over Goods Depots to Close.—The goods depots at Preston Brook, between Crewe and Warrington, and at Winsford & Over, on the former Cheshire Lines Committee Manchester to Chester line, London Midland Region, British Railways, will be closed from September 1, 1958. Full loads and livestock will be dealt with at Halton Station for Preston Brook, and at Over Wharton Station for Winsford & Over. Other traffic will, as at present, be dealt with at Runcorn and Northwich respectively.

New Railway Queen.—Mr. H. C. Johnson, General Manager of British Railways, Eastern Region, and Mr. J. F. Green, General Secretary of the National Union of Railwaymen, will crown the Railway Queen for 1958-59 at Belle Vue Gardens, Manchester, on September 13. The new Queen is Miss Gloria Cripps, aged 15½, a junior clerk in British Railways Works Office at Derby, and daughter of a Work Inspector in the London Midland Region Carriage & Wagon Department at Derby. Editorial reference to the Railway Queen movement was made in our February 21 issue. Derby is the first railway centre to provide two Railway Queens; the first was Miss Lily Dumelow, who was Queen in 1930-31.

Preservation of British Transport Relics.—At the invitation of Sir Brian Robertson, Chairman of the British Transport Commission, principal societies interested in the preservation of transport relics have combined to form a consultative panel to meet the Commission from time to time, with a view to the setting up of a museum or museums and advising on the relics to be preserved. Invitations were sent to: the Railway Club; the Stephenson Locomotive Society; the Railway Correspondence & Travel Society; the Newcomen Society; the Model Railway Club; the Historical Model Railway Club; the Railway & Canal Historical Society; and the Omnibus Society. At a meeting on

New Car-Ferry Steamer for S.N.C.F.

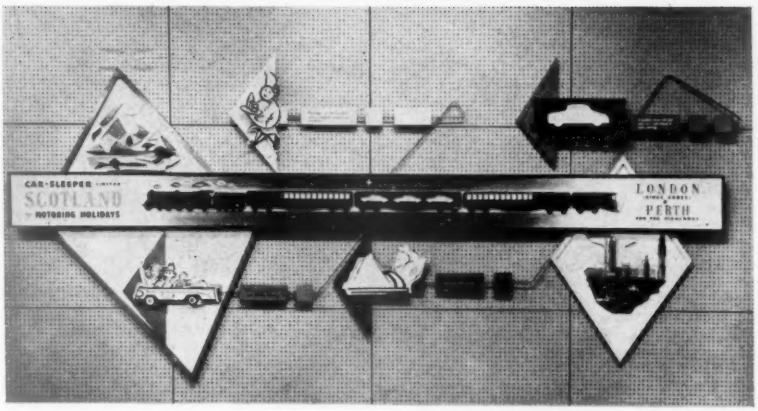
(*See our August 1 issue*)

Embarkation door, showing two jointed panels

View from lower car-deck aft to upper and lower decks for smaller vehicles

July 29, under the chairmanship of Mr. A. J. Boston, Mr. B. D. J. Walsh, of 320, High Holborn, W.C.1, was appointed Secretary & Treasurer. A constitution was drawn up, and the method of co-operation with the B.T.C. agreed. Suggestions are welcomed and should be communicated to the Secretary.

Eastern Region Car-Sleeper Display.—A new display, shown in the accompanying illustration, advertising the Car-Sleeper Limited has recently been installed in the car-sleeper office at Kings Cross Station, Eastern Region, British Railways. It was originally designed by the Eastern Region display section, but the final design and execution was carried out by A. Costa (Contracts) to the requirements of the Public Relations & Publicity Officer, Eastern Region.



Eastern Region car-sleeper display, showing cartoon characters illustrating the facilities available

Oldham & Son Ltd. Results.—Both the volume and value of production and grand sales of Oldham & Son Ltd. increased in the year ended March 31, 1958. Over 30 per cent of home production was devoted to direct exports to more than 80 countries. Overseas companies continued to progress, and sales in South Africa, Australia, and India steadily increased. Group profits were £411,592, compared with £452,697 in the previous year, and the dividend is maintained at 17½ per cent.

Machine Tool Orders.—The order book of the machine tool industry at the end of May again showed a decline for both home and export orders. The position for both the home and oversea markets was £67,105,000 for May against £68,610,000 in April and £91,474,000 in May last year. Home orders during May totalled £4,190,000 and exports £1,131,000 (against £3,932,000 and £1,246,000 respectively in April). Deliveries during May amounted to £4,926,000 in the home market and £1,650,000 oversea (against £4,884,000 and £1,757,000).

Progress of Eastern Region Electrification.—The civil engineering work connected with the electrification of the Colchester-Clacton-Walton lines, Eastern Region, British Railways, at 25 kV. 50 cycles a.c., is now complete except for minor permanent way alterations, the erection of load gauges for level crossings, and of track crossings for the signal cables. The electrical engineering work is continuing to make good progress. All the foundations for the structures carrying the overhead wires are now laid and almost all the structures themselves are in position. Some 70 per cent of the wiring has been installed and of this about a quarter has been finally adjusted.

Best Alco Half-Yearly Results for Recent Years.—The highest first-half-yearly earnings per common share in five years were announced by Alco Products Incorporated. In its statement to shareholders, the company reported an income of $2,429,000, or $1·30 per common share for the six months ended June 30. The next highest earnings for a comparable period were $1·02 earned in 1954. Income for the first half of 1957 amounted to 23 cents, due to the effects of an 11-week strike. Earnings for the second quarter of 1958 amounted to $993,000, or 52 cents per common share. This compares with 78 cents per common share in the first quarter of this year, and a net loss of 3 cents reported for the second quarter of 1957. The Chairman, Mr. P. T. Egbert, stated that second quarter earnings were lower than those for the first quarter because of a temporary reduction of shipments in some more profitable lines, coupled with a continuing squeeze on profits. He emphasised that the effect of increased costs are being minimised by a constant programme of cost reduction affecting all operations. The company has been encouraged by an increase in customer inquiries and is hopeful of a general upturn before the end of the year.

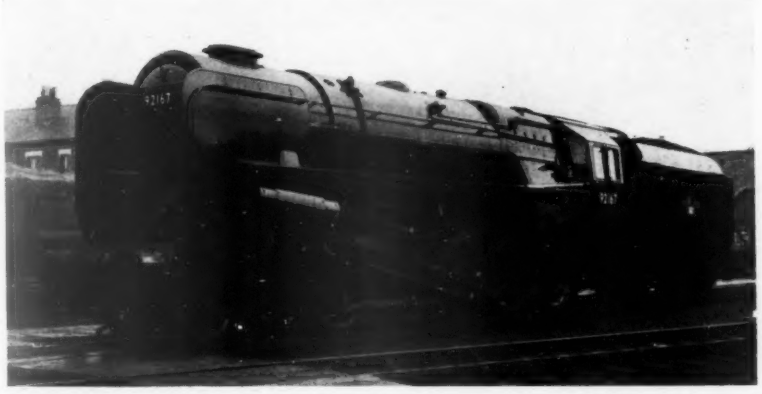
Closure of Hope Exchange Stations, L.M.R.—Hope High and Low Level stations, in the London Midland Region, in Flintshire, which have existed solely for the exchange of passengers, are to be closed from September 1. The High Level Station is on the former G.C.R. line from Bidston (Wirral) to Wrexham, and the Hope Low Level on the former L.N.W.R. line from Saltney (Chester) to Mold and Denbigh.

Delay on London Transport Northern Line.—Four London Transport Underground trains were delayed in tunnels for an hour on August 14, and 12 Underground stations were temporarily closed after an electrical short circuit cut off power supplies on the Northern Line near Camden Town. All Underground services were suspended between Euston and Archway on one line, and the Strand and Golders Green on the other. The failure occurred when the lid of a transformer box, which had not been properly secured, fell on to a live rail and brought the automatic circuit breakers into action.

N.E. Region "Day-Line Diesel" Tickets to Continue.—The touring facility, "day-line diesel" ticket, introduced by the North Eastern Region of British Railways in May, has proved popular. The ticket is to continue to be obtainable until further notice. Because of the introduction of some additional diesel trains and of the considerable amendments to train services to be made on September 15, the pamphlet which includes both tour suggestions and train service summaries, is to be re-issued early next month.

Renold Chains Issue Success.—The issue of Renold Chains Limited ordinary shares for cash is reported to have been very successful. Of the 1,356,369 ordinary £1 shares provisionally allotted to ordinary holders by way of "rights," 1,318,323, or 97.2 per cent, were accepted. The company which guaranteed the subscription of the issue, received applications for 680,444 excess shares in respect of the 61,481 excess shares available. These included 22,231 shares not provisionally

British Railways Locomotive Fitted with Mechanical Stoker



Class "9F" locomotive fitted with double chimney and Berkley stoker (*see our August* 8 *issue*)

allotted and 1,204 shares representing fractions. The excess shares have been allotted on the following basis:—On applications up to and including 20 shares, in full; 21 shares and up to and including 275 shares, 20 shares; over 275 shares, about 7½ per cent.

Platt-Stone Merger Agreement.—At meetings of Platt Brothers & Co. (Holdings) Ltd. and J. Stone & Co. (Holdings) Ltd. in London, recently, resolutions were passed without question or comment approving the proposed merger of the two companies. In the case of the Stone class, it is reported, meetings polls were taken for submission to the Court and in each case the Chairman, Mr. Kenneth H. Preston, announced that the resolution had been carried by the requisite majority.

Firth Brown Tools Costs and Exports.—The fall in group trading profit of Firth Brown Tools Limited from £579,722 to £400,136 reflects still more intense competition and a substantial loss of turnover from the April, 1957 strike, states Lord Aberconway, the chairman, in his statement. International competition in Western Europe and overseas is "increasingly severe," he adds. The group capital expenditure was £171,606 and for depreciation £145,634 was provided. Group net profit was £161,697 (£239,545) and dividend was 9 (11½) per cent for the year ended March 31, 1958.

London Transport Bus Service Withdrawals.—London Transport has stated that the central bus routes withdrawn this week as part of service economies are largely covered by existing road and rail services, or by routes specially extended. Only four short stretches of road, where passenger traffic is now negligible, are without buses. The service economies are the result of falling traffic, and the changes this week affect more than 30 routes. From August 20 to August 24, 22 routes will be withdrawn; two routes curtailed; seven extended; one diverted; and one new service started. The changes are the first stage of the overall 9 per cent reduction to be made in bus service mileage over the next five months, and already announced.

Forthcoming Meetings

September 2 (*Tue.*).—Permanent Way Institution, Leeds & Bradford Section, in the British Railways Social & Recreation Club, Ellis Court, Leeds City Station, at 7 p.m. Paper on "American railroads," by Mr. J. Nichols, British Railways, Eastern Region.

September 2 (*Tue.*).—Railway Correspondence & Travel Society, Sheffield Branch, at Livesey-Clegg House, 44, Union Street, Sheffield, at 7.30 p.m. Paper on "Fifty years of Midland performance," by Mr. J. F. Clay.

September 5 (*Fri.*).—The Railway Club, at 320, High Holborn, London, W.C.1, at 7.30 p.m. Paper on "The great Bristol contest of 1835," by Mr. K. G. Carr.

September 5 (*Fri.*) to September 15 (*Mon.*).—Railway Correspondence & Travel Society tour of Austria.

September 6 (*Sat.*).—Railway Correspondence & Travel Society, South of England Branch at the M.P.D. Social Hall, Eastleigh, at 6.30 p.m. Paper on "The North London Railway," by Mr. A. P. Hancox.

September 11 (*Thu.*).—Railway Correspondence & Travel Society, Bristol & District Branch, at the Grosvenor Hotel, Bristol, 1, at 7.15 p.m. Paper on "The pre-grouping railways of South Wales," by Mr. D. S. M. Barrie.

September 12 (*Fri.*).—Electric Railway Society, at the Exchange & Engineering Centre, New Street, Birmingham, at 7 p.m. Paper on "Rapid transit and suburban railways," by Mr. B. J. Prigmore.

September 16 (*Tue.*).—Railway Correspondence & Travel Society, East Midlands Branch, at the N.C.S. Guild Room, Toll Street, Nottingham, at 7.30 p.m. Paper on "The Leek & Manifold Railway," illustrated by lantern slides, by Dr. J. R. Hollick.

September 17 (*Wed.*).—Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, 1, Birdcage Walk, Westminster, S.W.1, at 5.30 p.m. Mr. Robert Arbuthnott's Presidential Address.

Railway Stock Market

Active conditions have persisted in stock markets, which remained under the influence of the reduction in the bank rate to 4½ per cent. It is being widely assumed in the City that this is likely to be followed by a further cut in 4 per cent later in the year. Gains in British Funds and industrial shares have been well maintained, but buying was more selective now that many shares have reached their highest levels so far recorded this year. There is general recognition that company profits are running below those of a year ago, but the rise in share prices reflects the view that most dividends are likely to be maintained and that the lower bank rate and other measures expected to help industry, should lead to an upward trend in profits and dividends next year.

Foreign rails have been assisted by the prevailing buoyancy in stock markets. Anotfagasta ordinary stock, for instance, was in better demand and improved further from 14¼ to 15, while the preference stock was marked up from 27½ to 30½. The 5 per cent (Bolivia) debentures were 94½.

Chilean Northern first debentures rose to 47½, while Costa Rica ordinary stock was 16 and the first debentures were 75. Guayaquil & Quito assented bonds were quoted at 70½ and Paraguay Central prior debentures at 12. United of Havana second income stock was fractionally better at 6⅞; the consolidated stock was 1½. Brazil Railway bonds held steady at 5½, and San Paulo Railway 3s. units kept at 2s.

Mexican Central "A" bearer debentures at 70½ were also the same as a week ago. International Railways of Central America, common shares were quoted at $20¼ and the preferred stock at $114. West of India Portuguese stock was 79.

The easier trend on Wall Street was reflected by Canadian Pacifics, which were $51, compared with $52⅛ a week ago, while White Pass shares receded from $15 to $14½. Canadian Pacific preference eased from 55¼ to 55, while the 4 per cent debentures kept at 67.

A feature among shares of locomotive builders and engineers has again been activity in North British Locomotive on the prospect of considerbly better results as time proceeds, and the price has advanced to 13s. 3d., compared with 11s. a week ago. Charles Roberts were also favoured and these 5s. shares rose on balance from 8s. 3d. to 10s. 6d. On the other hand, Beyer, Peacock 5s. shares have eased from 8s. 1½d. to 7s. 9d., Birmingham Wagon were little changed at 15s. 3d., but Wagon Repairs 5s. shares attracted renewed attention and have risen from 11s. 1½d. to 12s. Gloucester Wagon 10s. shares were good at 14s. 6d. compared with 13s. 9d. a week ago.

Westinghouse Brake rose from 37s. 9d. a week ago to 38s. 3d. and in other directions, Pressed Steel 5s. shares were in demand and rose from 16s. 4½d. to 17s. 6d. Another good feature has been an advance from 45s. 3d. to 47s. in British Timken, while reflecting the buoyant trend in stock markets. Tube Investments have advanced 57s. 6d. from 54s. 9d. a week ago. Ruston & Hornsby improved afresh from 23s. 6d. to 24s. and Ransomes & Marles 5s. shares from 12s. 9d. to 13s. 1½d. G. D. Peters were 23s. 1½d.

Babcock & Wilcox have been strong at 49s. 3d., John I. Thornycroft gained 1s. 3d. at 35s. 7½d., Baker Perkins were 38s. and in other directions Broom & Wade 5s. shares were 11s. 6d. and Holman Bros. 10s. shares 18s. 6d. xd. Asquith Corporation 5s. shares have changed hands around 19s. 9d., Craven Bros. 5s. shares were 7s. and Alfred Herbert 35s. 3d. and Vickers at 33s. more than held their recent good rise. Elsewhere, however, John Brown at 28s. 3d. lost part of the sharp rise after the financial results; in his annual statement Lord Aberconway points out that the increase in trading profits from £3,944,092 to £4,171,303 was due partly to inclusion for the first time of profits of the subsidiary, Constructors John Brown. Wolf Tools 5s. shares have been firm at 8s. and B.S.A. strengthened to 31s. 4½d.

English Electric rose from 55s. 6d to 57s. General Electric from 34s. 9d. to 35s. 3d., while Associated Electrical at 53s. were 1s. 9d. higher than a week ago. Crompton Parkinson 5s. shares moved up to 11s.

OFFICIAL NOTICES

CITY of Sheffield. Sewage Disposal Department—Contract No. B.M.(R.S.)10. Supply of STEEL TIPPING WAGONS. Tenders are invited for the supply and delivery of twelve Steel Side-tipping Railway Wagons of 420 cubic feet capacity, for standard gauge track. Forms of Tender, Conditions of Contract and Specifications may be obtained from the undersigned on deposit of a fee of three guineas which will be refunded on receipt of a bona fide Tender. Tenders, in the official envelope provided (which must bear no indication of the Tenderer), must be delivered to the Town Clerk, Town Hall, Sheffield, 1, not later than 10.0 a.m. on Friday, 12th September, 1958. JAS. H. EDMONDSON, General Manager and Engineer, General Manager's Office, Sewage Disposal Department, Wincobank, Sheffield, 9.

THE Director General of India Store Department, Government Building, Bromyard Avenue, Acton, London, W.3, invites tenders for the supply of 123 SUPERHEATER ELEMENTS for W.G. Locos. Forms of tender may be obtained from the above address on or after the 22nd August, 1958, at a fee of 10s. which is not returnable. If payment is made by cheque, it should please be made payable to "High Commissioner for India." Tenders are to be delivered by 2 p.m. on Monday, 29th September, 1958. Please quote reference No. 10/58.DB/RLY.2.

THE Proprietors of Patent No. 732,850 for "Improvements in or Relating to Rail Vehicles," desire to secure commercial exploitation by Licence or otherwise in the United Kingdom. Replies to Haseltine Lake & Co., 28, Southampton Buildings, Chancery Lane, London, W.C.2.

ENGINEER. Major oil company requires qualified Engineer. Minimum qualification H.N.C., with railway training and executive experience preferably associated with diesel traction. Age 27/34. Appointment is based on London and will involve travelling throughout the country. Good commencing salary. Pension and Life Assurance Scheme. Applications, giving full details of personal particulars, experience and qualifications to Box 654, *The Railway Gazette*, 33 Tothill Street, London, S.W.1, quoting Ref. QE.256.